

*Chas*

**BRIEF  
PASSENGER  
CAR  
DATA**

**—1953—**



**ETHYL CORPORATION**



# BRIEF PASSENGER CAR DATA

1953

## ETHYL CORPORATION

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## FOREWORD

This edition of Brief Passenger Car Data marks the twentieth year of publication. Starting in 1931 the booklet has been produced each year, except for the war years 1943, 1944, and 1945, as a helpful reference guide for oil and automotive industry people to some of the more significant passenger car engine and chassis specifications.

Looking back through previous editions to 1931, the year-to-year improvements in automotive engine design and gasoline antiknock quality integrate into a pattern of coordinated progress that is truly remarkable. The following information from the 1931 and 1953 editions illustrates the progress in engine design made during the past 22 years:

	<u>1931</u>	<u>1953</u>	<u>% Change</u>
Average Maximum Brake Horsepower .....	93.12	133.0	+42.8
Average Displacement .....	272.66	256.6	- 5.9
Average Horsepower per Cubic Inch .....	0.342	0.512	+49.7
Average Compression Ratio..	5.23	7.44	+42.3

During this 22-year period the average octane number of regular grade gasoline increased from 63 to 85 and that of premium grade from 74 to 91.5.

The present trends of engine design and gasoline antiknock quality indicate that progress will continue toward still higher engine efficiency and performance.

## NOTICE

The specifications and adjustments contained in this booklet have been compiled by the Technical Service Division of the Research Laboratories of the Ethyl Corporation from information supplied by manufacturers of motor cars, ignition apparatus, spark plugs, etc. None of this information represents the results of tests at the Research Laboratories of the Ethyl Corporation.

This information covers the essential characteristics, in ready reference form, of the 1953 passenger car models. It is correct at date of publication, but changes may be made from time to time by motor car manufacturers.

Data on horsepower, torque, compression pressure, etc., are that given by the manufacturer. Methods and technique of testing differ in various engineering departments, so these data are frequently not comparable for different makes of cars.

## GENERAL NOTES

### Valves

Valve tappet clearances are extremely important. Frequent checking of valve tappet clearances will add materially to the proper functioning and long life of valves. Clearances given on the specification sheets are for normal driving conditions. For heavy duty, such as heavy loads or high speed, it may be desirable to give additional clearance.

### Spark Plugs

The spark plug installed and recommended by the factory is shown first in the specifications with the corresponding AC, Auto-Lite or Champion spark plug shown as an alternate. These plugs are designed for average driving conditions. For heavy duty or high speed driving, it may be necessary to use a colder plug in order to obtain satisfactory spark plug life. The necessity for a colder plug is indicated by rapid electrode wear and, in extreme cases, splitting and cracking away of the insulator.

It is sometimes necessary to change to a plug which is hotter than the factory equipment plug for very light service, especially in metropolitan areas. If an engine is not pumping oil and the ignition system is in good condition but the spark plug consistently fouls with excessive carbon deposit—the need for a hotter plug is indicated.

Periodic cleaning of spark plugs by means of an efficient spark plug cleaner is often advantageous.

Spark plug gaps should be set and maintained at factory setting. Pitted breaker points should be cleaned and, if badly pitted, replaced. Incorrectly set breaker points will affect ignition timing and ignition output.

### Ignition Timing

Ignition timing is given in crankshaft degrees and is factory setting. Almost all distributors are provided with some type of adjustment enabling the ignition timing to be reset without disturbing the calibration of the distributor advance mechanism. Retarded ignition timing will eliminate or reduce detonation but will result in decreased performance and fuel economy. Also, in most cases, an ignition setting somewhat in advance of the factory setting will result in additional performance and economy, although such an ignition setting will require a fuel of higher antiknock value than the standard setting.

### Carburetors

Carburetors should not be adjusted or jets changed except by qualified mechanics. Correct fuel (or float) levels are extremely important to satisfactory performance and fuel economy—factory specifications should be strictly maintained.



# LIST OF ABBREVIATIONS

AA .....	Aluminum Alloy (cylinder heads & pistons)
AC .....	AC Spark Plug Division, GMC
Adv .....	Advance
AI .....	Aluminum Industries (valves)
AL .....	The Electric Auto-Lite Company
AMA .....	Automobile Manufacturers Association
ATC .....	After Top Center
BTC .....	Before Top Center
Bmep .....	Brake mean effective pressure
ByP .....	By Pass (oil filter)
C .....	Cold (valve adjustment)
Car .....	Carter (carburetors)
Centrif .....	Centrifugal
Champ .....	Champion Spark Plug Company
Clr .....	Clearance
CNA .....	Chrome Nickel Alloy Iron
Comp Press .....	Compression Pressure
Cr Sp .....	Cranking Speed
DD .....	Downdraft
Deg .....	Degrees
Dup .....	Duplex
Eaton .....	Eaton Mfg. Company (valves)
Eng .....	Engine
Eqpt .....	Equipment
Exh .....	Exhaust
F .....	F-head
FF .....	Full Flow (oil filter)
H .....	Hot (valve adjustment)
HP .....	Horsepower
Hyp .....	Hypoid (rear axle gearing)
Hyd Lifters .....	Hydraulic Lifters
I .....	In-head (overhead valves)
Int .....	Intake
L .....	L-head
Max .....	Maximum
Mech Lifters .....	Mechanical Lifters
No. Cyl .....	Number of cylinders
OD .....	Overdrive
Recm Press .....	Recommended Pressure (tires)
Rich .....	Rich Manufacturing Company (valves)
RP .....	Rochester Products (carburetors)
RE .....	Replaceable Element (oil filter)
RU .....	Replaceable Unit (oil filter)
SB .....	Spiral Bevel
SD .....	Side Draft
Sil .....	Silchrome
Sgl .....	Single
Std .....	Standard
Strom .....	Stromberg Carburetor Company
TDC .....	Top Dead Center
TP .....	Thompson Products, Inc. (valves)
Trans .....	Transmission
Vac .....	Vacuum

# SUMMARY OF CHARACTERISTICS

## 1953 UNITED STATES PASSENGER CARS

	1952	1953	Change
Number of Makes.....	20	19	-1
Number of Models.....	60	54	-6

### ENGINE CHARACTERISTICS:

Average Standard Compression Ratio.....	7.18	7.44	+0.26
Average Optional Higher Compression Ratio...	7.68	7.37	-0.31
No. of Optional Higher Compression Ratios....	11	9	-2
Highest Standard Compression Ratio.....	8.00	8.50	+0.50
Lowest Standard Compression Ratio.....	6.60	6.70	+0.10
Highest Optional Compression Ratio.....	10.00	8.00	-2.00
Average Displacement, Cubic Inches.....	249.5	256.6	+7.1
Average Maximum Brake Horsepower.....	122.1	133.0	+11.1
Average RPM at Maximum Horsepower.....	3802	3861	+59
Average Horsepower Per Cubic Inch.....	0.489	0.512	+0.023
Average Brake Mean Effective Pressure, PSI...	126.9	130.7	+3.8
Maximum Horsepower Per Cubic Inch.....	0.580	0.634	+0.054
Minimum Horsepower Per Cubic Inch.....	0.418	0.438	+0.020
Average lb/HP—8 Passenger Sedan.....	29.45	27.06	-2.39

### Rated Horsepower With Standard Compression Ratio:

	Number of Models		
Under 75 .....	3	1	-2
75-99 .....	12	7	-5
100-149 .....	30	28	-2
150-199 .....	15	14	-1
200-250 .....	0	4	+4

### Piston Materials:

	Number of Models		
Aluminum Alloy .....	52	51	-1
Cast Iron or Steel Alloy.....	8	3	-5

# **BUICK**

CAR MODEL	Special Series 40 Synchromesh	Special Series 40 Dynaflow
<b>ENGINE</b>		
No. Cyl-Head Type.....	8-I	8-I
Bore and Stroke (in).....	3-5/16"x4-1/8"	3-5/16"x4-1/8"
Displacement (cu in).....	263.3	263.3
AMA Horsepower.....	32.51	32.51
Max Horsepower @ rpm.....	125 @ 3800	130 @ 3800
Max Torque, lb-ft @ rpm.....	224 @ 2200	230 @ 2400
Max bmep, lb/sq in.....	128.3	131.7
Head Material.....	Cast Iron	Cast Iron
Compression Ratio.....	7.00	7.60
Comp Press, lb/sq in @ rpm.....		
Piston Material.....	AA	AA
Bearing Material.....		Steel Backed Durex
<b>IGNITION</b>		
Spark Plug—Factory Eqpt.....	AC 46X	AC 46X
Alternate.....	Champion J-11, Auto-Lite A9	
Spark Plug Gap.....	.023" to .028"	.023" to .028"
Breaker Gap.....	.0125" to .0175"	.0125" to .0175"
Cam Angle.....		
Firing Order.....		1-6-2-3-8-3-7-4
Timing—Crankshaft Degrees ...	4° BTC	4° BTC
Adv Deg—Centrif—Vac.....	24-22	24-22
Adv Begins—Ends—Eng rpm....	600-4000	600-4000
Battery—Volts, Terminal Ground	6, Negative	6, Negative
<b>VALVES</b>		
Make and Material.....Int		TP or Eaton or Rich 3140
Exh.....		TP or Eaton or Rich XCR or 2112N
Tappet Clr—Seat Angle.....Int	.015"H, 45°	Mech or Hyd Lifters, 45°
Exh.....	.015"H, 45°	Mech or Hyd Lifters, 45°
Exhaust Seat Inserts.....	None	None
<b>CARBURETOR</b>		
Make, Model.....	Strom AAUVB267 or Car WCD882S	
Size, Type.....	1-1/8" Dual DD	1-1/8" Dual DD
Float Level.....	(1)	(1)
Choke Control.....	Automatic	Automatic
<b>ENGINE LUBRICATION</b>		
Oil—Summer—Winter—SAE ....	See Buick Instruction Book	
Normal Oil Press—lb @ mph....	35 @ 35	35 @ 35
Oil Filter—Type.....	ByP, RE (2)	ByP, RE (2)
<b>CAPACITY</b>		
Oil.....(qt)	5-1/2 Refill	5-1/2 Refill
Water.....(qt)	12 (3)	13-1/2 (3)
Transmission.....(pt)	1-3/8 Refill	20 Refill
Rear Axle.....(pt)	4	4
Gasoline.....(gal)	19	19
<b>GENERAL DATA (6-Passenger Four-Door Sedan)</b>		
Wheelbase.....(in)	121-1/2	121-1/2
Over All Lgth Incl Bumpers (in)	205-1/8	205-1/8
Shipping Weight.....(lb)	3710	3812
Tire Size—Recm Press.....(lb)	7.60x15-24-24	7.60x15-24-24
Rear Axle Ratio—Type.....	3.9 Hyp	3.6 Hyp
<b>LOCATION CHASSIS SERIAL NO. Inside Left Front Windshield Pillar Post</b>		

- (1) Upon removal of sight plug with engine idling, fuel level should be just high enough to wet threads at lower side of inspection hole.
- (2) Full flow to rocker arms.
- (3) Synchromesh models—13-1/2 quarts with heater. Dynaflow models—15 quarts with heater.



**BUICK**

CAR MODEL	Super Series 50 Sycromesh	Super Series 50 Dynaflow	Series 70 Roadmaster Dynaflow
<b>ENGINE</b>			
No. Cyl-Head Type.....	V-8-I	V-8-I	V-8-I
Bore and Stroke (in).....	4.00x3.20	4.00x3.20	4.00x3.20
Displacement (cu in).....	322.0	322.0	322.0
AMA Horsepower.....	51.2	51.2	51.2
Max Horsepower @ rpm.....	164 @ 4000	170 @ 4000	188 @ 4000
Max Torque, lb-ft @ rpm.....	286 @ 2200	292 @ 2200	300 @ 2400
Max bmep, lb/sq in.....	134.0	136.6	140.6
Head Material.....	Cast Iron	Cast Iron	Cast Iron
Compression Ratio.....	8.00	8.50	8.50
Comp Press, lb/sq in @ rpm.....			
Piston Material.....	AA	AA	AA
Bearing Material.....		Steel Backed Durex	
<b>IGNITION</b>			
Spark Plug—Factory Eqpt.....	AC 44-5	AC 44-5	AC 44-5
Alternate.....	Champion	J-8, Auto-Lite A7 or AR6	
Spark Plug Gap.....	.030" to .035"	.030" to .035"	.030" to .035"
Breaker Gap.....		.0125" to .0175"	
Cam Angle.....			
Firing Order.....		1-2-7-8-4-5-6-3	
Timing—Crankshaft Degrees ...	5° BTC	5° BTC	5° BTC
Adv Deg—Centrif—Vac.....	32-25	32-25	32-25
Adv Begins—Ends—Eng rpm.....	600-4300	600-4300	600-4300
Battery-Volts, Terminal Ground	12, Negative	12, Negative	12, Negative
<b>VALVES</b>			
Make and Material.....Int		TP or Eaton or Rich 3140	
Exh.....		TP or Eaton or Rich 21-4NS or 2155N	
Tappet Ctr—Seat Angle.....Int		Hydraulic Lifters, 45°	
Exh.....		Hydraulic Lifters, 45°	
Exhaust Seat Inserts.....	None	None	None
<b>CARBURETOR</b>			
Make, Model.....	(1)	(1)	(2)
Size, Type.....	1-1/4" Dual DD	1-1/4" Dual DD	1-1/8" 4 BBL, DD
Float Level.....	(3)	(3)	(4)
Choke Control.....	Automatic	Automatic	Automatic
<b>ENGINE LUBRICATION</b>			
Oil—Summer—Winter—SAE ....	See Buick Instruction Book		
Normal Oil Press—lb @ mph....	35 @ 35	35 @ 35	35 @ 35
Oil Filter—Type.....	FF, RE	FF, RE	FF, RE
<b>CAPACITY</b>			
Oil.....(qt)	6 Refill	6 Refill	6 Refill
Water.....(qt)	16-1/2 (5)	18 (5)	18 (5)
Transmission.....(pt)	2-1/2	20 Refill	20 Refill
Rear Axle.....(pt)	4-1/2	4-1/2	4-1/2
Gasoline.....(gal)	19	19	19
<b>GENERAL DATA (6-Passenger Four-Door Sedan)</b>			
Wheelbase.....(in)	125-1/2 (6)	125-1/2 (6)	125-1/2 (6)
Over All Lgth Incl Bumpers (in)	211.6 (6)	211.6 (6)	211.6 (6)
Shipping Weight.....(lb)	3905	4007	4100
Tire Size—Recm Press.....(lb)	7.60x15-24-24	7.60x15-24-24	8.00x15-24-24
Rear Axle Ratio—Type.....	3.6 Hyp	3.6 Hyp	3.6 Hyp
<b>LOCATION CHASSIS SERIAL NO. Inside Left Front Windshield Pillar Post</b>			

- (1) Stromberg AAVB-26 or Carter WCD.
- (2) Stromberg 4AUV-267 or Carter WCFB-996S.
- (3) Stromberg: Air horn gasket to float 21/32". Carter: Cover flange to float 15/64".
- (4) Stromberg: Air horn gasket to float, primary 3/32", secondary 3/16". Carter: Cover flange to float, primary 3/64", secondary 1/32".
- (5) Heater requires 1-1/2 quarts additional.
- (6) Series 50 and 70 Convertible Coupe, Riviera, Estate Wagon and Series 70 Skylark Sport Convertible — wheelbase 121-1/2, overall length 207.6.

# **CADILLAC**

CAR MODEL	62	60 Special	75
<b>ENGINE</b>			
No. Cyl-Head Type.....	V-8-I	V-8-I	V-8-I
Bore and Stroke (in).....	3-13/16x3-5/8	3-13/16x3-5/8	3-13/16x3-5/8
Displacement (cu in).....	331	331	331
AMA Horsepower.....	46.5	46.5	46.5
Max Horsepower @ rpm.....	210 @ 4150	210 @ 4150	210 @ 4150
Max Torque, lb-ft @ rpm.....	330 @ 2700	330 @ 2700	330 @ 2700
Max bmep, lb/sq in.....	150.2	150.2	150.2
Head Material.....	Cast Iron	Cast Iron	Cast Iron
Compression Ratio.....	8.25	8.25	8.25
Comp Press, lb/sq in @ rpm.....	150 @ Cr Sp, 203 @ 1000		
Piston Material.....	AA	AA	AA
Bearing Material.....		Steel Backed Durex	
<b>IGNITION</b>			
Spark Plug—Factory Eqpt.....	AC 46-5	AC 46-5	AC 46-5
Alternate.....	AL A9 or AR8, Champ J-11		
Spark Plug Gap.....	.035"	.035"	.035"
Breaker Gap.....	.016"	.016"	.016"
Cam Angle.....	31° ± 1-1/2°	31° ± 1-1/2°	31° ± 1-1/2°
Firing Order.....	1-8-4-3-6-5-7-2		
Timing—Crankshaft Degrees...	2-1/2° BTC	2-1/2° BTC	2-1/2° BTC
Adv Deg—Centrif—Vac.....	24-1/2—27-1/2	24-1/2—27-1/2	24-1/2—27-1/2
Adv Begins—Ends—Eng rpm....	900-4000	900-4000	900-4000
Battery—Volts, Terminal Ground		12, Negative	
<b>VALVES</b>			
Make and Material.....Int		Rich 3140 or Eaton 8645	
Exh.....		Rich 2112N or Eaton Sil X-10	
Tappet Clr—Seat Angle.....Int		Hydraulic Lifters, 45°	
Exh.....		Hydraulic Lifters, 45°	
Exhaust Seat Inserts.....None		None	None
<b>CARBURETOR</b>			
Make, Model.....	Carter WCFB 2005S or Rochester 4GC		
Size, Type.....	1-1/4" DD 4 Barrel		
Floot Level.....	Car pri. 1/8", sec. 3/16"; RP 1-9/16" (1)		
Choke Control.....Automatic	Automatic	Automatic	Automatic
<b>ENGINE LUBRICATION</b>			
Oil—Summer—Winter—SAE....	See Cadillac Instruction Book		
Normal Oil Press—lb @ mph....	30-35 @ 30	30-35 @ 30	30-35 @ 30
Oil Filter—Type.....None	None	None	None
<b>CAPACITY</b>			
Oil.....(qt) 5	5	5	5
Water.....(qt) 19-3/4	19-3/4	19-3/4	19-3/4
Transmission.....(pt) 2-1/2 Refill	2-1/2 Refill	(2)	
Rear Axle.....(pt) 5	5	5	5
Gasoline.....(gal) 20	20	20	20
<b>GENERAL DATA (6-Passenger Four-Door Sedan)</b>			
Wheelbase.....(in) 126	130	146-3/4	
Over All Lgth Incl Bumpers (in)	215.8 (3)	236.5	
Shipping Weight.....(lb) 4213	4350	4713 (4)	
Tire Size—Recm Press.....(lb) 8.00x15-24-24	8.00x15-24-24	8.20x15-28-28	
Rear Axle Ratio—Type.....	3.07	3.77	

## **LOCATION CHASSIS SERIAL NO. Right Frame Sidebar, Behind Engine Bracket**

- (1) Carter: Distance between float and machined surface of bowl cover casting, bowl cover assembly inverted. Rochester: Distance between bottom of float and bowl cover gasket, bowl cover assembly inverted.
- (2) Hydra-Matic transmission requires 11 quarts to refill.
- (3) Overall length of Coupe, Coupe DeVille, Convertible Coupe and Convertible Coupe Special is 229.8".
- (4) Add 90 pounds for Hydra-Matic.

# CHEVROLET

CAR MODEL	Bel Air "Two-Ten" "One-Fifty" Synchronesh	Bel Air "Two-Ten" Powerglide
<b>ENGINE</b>		
No. Cyl-Head Type.....	6-1	6-1
Bore and Stroke (in).....	3-9/16 x 3-15/16	3-9/16 x 3-15/16
Displacement (cu in).....	235.5	235.5
AMA Horsepower.....	30.4	30.4
Max Horsepower @ rpm.....	108 @ 3600	115 @ 3600
Max Torque, lb-ft @ rpm.....	200 @ 2000	204.1 @ 2000
Max bmep, lb/sq in.....	128.1	130.7
Head Material.....	Cast Alloy Iron	Cast Alloy Iron
Compression Ratio.....	7.1	7.5
Comp Press, lb sq in @ rpm....	130 Minimum @	Cr Sp. Engine Hot
Piston Material.....	Cast Alloy Iron	Cast Alloy Aluminum
Bearing Material.....	Steel Backed Thin Wall Babbitt	
<b>IGNITION</b>		
Spark Plug—Factory Eqpt.....	AC 44-5	AC 44-5
Alternate.....	(1)	(1)
Spark Plug Gap.....	.035"	.035"
Breaker Gap.....	.0125" to .0175" (Worn)	.0125" to .0175" (Worn)
Cam Angle.....	38° to 45°	38° to 45°
Firing Order.....	1-5-3-6-2-4	1-5-3-6-2-4
Timing—Crankshaft Degrees...	TDC	TDC
Adv Deg—Centrif—Vac.....	34-20	26-20
Adv Begins—Ends—Eng rpm....	600-3600	600-3600
Battery—Volts, Terminal—Ground	6, Negative	6, Negative
<b>VALVES</b>		
Make and Material.....Int.....	Silchrome or Nickel Chrome Steel	
Exh.....	Silchrome Steel	
Tappet Ctr—Seat Angle.....Int.....	.006"H (2)	Hyd Lifters (2)
Exh.....	.013"H (3)	Hyd Lifters (3)
Exhaust Seat Inserts.....	None	None
<b>CARBURETOR</b>		
Make, Model.....	RP 7004915	RP 7004478
Size, Type.....	1-1, 2" Sgl DD	1-1, 2" Sgl DD
Float Level.....	1-9/32" (4)	1-9/32" (4)
Choke Control.....	Automatic	Automatic
<b>ENGINE LUBRICATION</b>		
Oil—Summer—Winter—SAE....	See Chevrolet Instruction Book	
Normal Oil Press—lb @ mph....	14 @ 2000 rpm	35
Oil Filter—Type.....	None	None
<b>CAPACITY</b>		
Oil.....(qt) 5 (Refill)		5 (Refill)
Water.....(qt) 15		15
Transmission.....(pt) 1-1/2		9 Quarts (Refill)
Rear Axle.....(pt) 3-1/2		3-1/2
Gasoline.....(gal) 16		16
<b>GENERAL DATA (6 Passenger Four-Door Sedan)</b>		
Wheelbase.....(in) 115		115
Over All Lgth Incl Bumpers.....(in) 195-1/2		195-1, 2
Shipping Weight.....(lb) (5)		(6)
Tire Size—Recm Press.....(lb) 6.70x15-24-24		6.70x15-24-24
Rear Axle Ratio—Type.....	3.70 Hyp	3.55 Hyp
<b>LOCATION CHASSIS SERIAL NO</b>		
	Left Front Body Hinge Pillar	
(1) Champion's recommendation is J-8; Auto-Lite's is A7 or AR3.		
(2) Seat angle in cylinder head, 31°; valve face angle, 30°.		
(3) Seat angle in cylinder head, 46°; valve face angle, 45°.		
(4) From cover surface to bottom of float.		
(5) Bel Air 3250, "Two-Ten" 3225, "One-Fifty" 3205.		
(6) Bel Air 3365, "Two-Ten" 3345.		

# CHRYSLER

CAR MODEL	Windsor C-60	New Yorker C-56
<b>ENGINE</b>		
No. Cyl-Head Type.....	6-L	V-8-I
Bore and Stroke (in).....	3-7/16x4-3/4	3-13/16x3-5/8
Displacement (cu in).....	264.5	331.1
AMA Horsepower.....	28.36	46.5
Max Horsepower @ rpm.....	119 @ 3600	180 @ 4000
Max Torque, lb-ft @ rpm.....	218 @ 1600	312 @ 2000
Max bmep, lb/sq in.....	124.0	142.0
Head Material.....	Cast Iron	Cast Iron
Compression Ratio.....	7.0	7.5
Comp Press, lb/sq in @ rpm.....	120-150 @ 150	135-165 @ 150
Piston Material.....	AA	AA
Bearing Material.....	Steel Backed Lead Base Babbit	

<b>IGNITION</b>		
Spark Plug—Factory Eqp.....	AL AR8	AL 4S-140
Alternate.....	AC 46, Champ J-8	AC 46, Champ J-8
Spark Plug Gap.....	.035"	.035"
Breaker Gap.....	.018" to .020"	.015" to .018"
Cam Angle.....	39° ± 3	32° to 36° (1)
Firing Order.....	1-5-3-6-2-4	1-8-4-3-6-5-7-2
Timing—Crankshaft Degrees.....	TDC	4° BTC
Adv Deg—Centrif—Vac.....	20-18	22-23
Adv Begins—Ends—Eng rpm.....	700-2850	800-3550
Battery—Volts, Terminal Ground	6 Positive	6 Positive

<b>VALVES</b>		
Make and Material.....	Int Exh	Silicon—Chromium Steel Silicon—Chromium Steel
Tappet Clr—Seat Angle.....	Int .008"H, 45° Exh .010"H, 45°	Hyd Lifters, 45° Hyd Lifters, 45°
Exhaust Seat Inserts.....	Yes	Yes

<b>CARBURETOR</b>		
Make, Model.....	B & B (Car) E9C1 (2)	Car WCD-935-S
Size, Type.....	1-1 2" Sgl DD	1-1 1/4" Dual DD
Float Level.....	5 61" (3)	11/64" (4)
Choke Control.....	Automatic	Automatic

<b>ENGINE LUBRICATION</b>		
Oil—Summer—Winter—SAE....	See Chrysler Instruction Book	
Normal Oil Press—lb @ mph....	50 @ 30	60 @ 30
Oil Filter—Type.....	FF, RE	FF, RE

<b>CAPACITY</b>		
Oil.....(qt)	5 (5)	5
Water.....(qt)	15	25
Transmission.....(pt)	2-3/4 (6)	3 (7)
Rear Axle.....(pt)	3-1/4	3-1/2
Gasoline.....(gal)	17	20

<b>GENERAL DATA (6 Passenger Four-Door Sedan)</b>		
Wheelbase.....(in)	125-1/2	125-1/2
Over All Lpth Incl Bumpers (in)	211	211
Shipping Weight.....(lb)	3655	4000
Tire Size—Recm Press.....(lb)	7.60x15-24-24	8.00x15-24-24
Rear Axle Ratio—Type.....	3.9 Hyp (8)	3.54 Hyp (9)

## LOCATION CHASSIS SERIAL NO. Left Front Door Body Hinge Post

- (1) Total for two-breaker distributor; 26° to 28° for each breaker.
- (2) Model E9A1 on Windsor Deluxe.
- (3) From top of float chamber to top of float.
- (4) Between machined surface of float chamber cover and nearest point on float.
- (5) With Fluid-Torque Drive, combined torque converter and crankcase capacity is 12 quarts.
- (6) 3 pints refill when equipped with Fluid-Matic Drive.
- (7) If equipped with torque converter, torque converter unit capacity 10-1/2 quarts.
- (8) With Fluid-Torque Drive 3.73 standard, 3.54 optional.
- (9) 3.36 optional, With Fluid-Torque Drive 3.36 standard, 3.54 and 3.08 optional.



# CHRYSLER

CAR MODEL	Custom Imperial C-58	Crown Imperial C-59
ENGINE		
No. Cyl-Head Type.....	V-8-1	V-8-1
Bore and Stroke (in).....	3-13 16X3-5, 8	3-13/16X3-5, 8
Displacement (cu in).....	331.1	331.1
AMA Horsepower.....	46.5	46.5
Max Horsepower @ rpm.....	180 @ 4000	180 @ 4000
Max Torque, lb-ft @ rpm.....	312 @ 2000	312 @ 2000
Max bmep, lb/sq in.....	142.0	142.0
Head Material.....	Cast Iron	Cast Iron
Compression Ratio.....	7.5	7.5
Comp Press, lb-sq in @ rpm....	135-165 @ 150	135-165 @ 150
Piston Material.....	AA	AA
Bearing Material.....	Steel Backed Lead Base Babbit	
IGNITION		
Spark Plug—Factory Eqpt.....	AL 4S-140	AL 4S-140
Alternate.....	AC 46, Champ J-8	AC 46, Champ J-8
Spark Plug Gap.....	.035"	.035"
Breaker Gap.....	.015" to .018"	.015" to .018"
Cam Angle.....	32° to 36° (1)	32° to 36° (1)
Firing Order.....	1-8-4-3-6-5-7-2	1-8-4-3-6-5-7-2
Timing—Crankshaft Degrees....	4° BTC	4° BTC
Adv Deg—Centrif—Vac.....	22-23	22-23
Adv Begins—Ends—Eng rpm....	800-3550	800-3550
Battery—Volts, Terminal Ground	6 Positive	12 Positive
VALVES		
Make and Material..... Int	Silicon—Chromium Steel	
Exh	Silicon—Chromium Steel	
Tappet Ctr—Seat Angle..... Int	Hydraulic Lifters, 45°	
Exh	Hydraulic Lifters, 45°	
Exhaust Seat Inserts.....	Yes	Yes
CARBURETOR		
Make, Model.....	Car WCD-935-S	Car WCD-992-S
Size, Type.....	1-1/4" Dual DD	1-1/4" Dual DD
Floot Level.....	11/64" (2)	11/64" (2)
Choke Control.....	Automatic	Automatic
ENGINE LUBRICATION		
Oil—Summer—Winter—SAE....	See Chrysler Instruction Book	
Normal Oil Press—lb @ mph....	60 @ 30	60 @ 30
Oil Filter—Type.....	FP, RE	FP, RE
CAPACITY		
Oil..... (qt)	5	5
Water..... (qt)	25	25
Transmission..... (pt)	3 (3)	3 (4)
Rear Axle..... (pt)	3-1/2	5
Gasoline..... (gal)	20	20
GENERAL DATA (6 Passenger Four-Door Sedan)		
Wheelbase..... (in)	133-1/2	145-1/2
Over All Lgth Incl Bumpers. (in)	219	229-1/4
Shipping Weight..... (lb)	4425	Not Available
Tire Size—Recm Press..... (lb)	8 20x15-24-24	8.90x15-24-24
Rear Axle Ratio—Type.....	3.54 Hyp (5)	3.54 Hyp
LOCATION CHASSIS SERIAL NO. Left Front Door Body Hinge Post		

- (1) Total for two-breaker distributor: 26° to 28° for each breaker.
- (2) Between machined surface of float chamber cover and nearest point on float.
- (3) If equipped with torque converter, torque converter unit capacity 10-1 2 quarts.
- (4) Torque converter capacity 10-1/2 quarts.
- (5) 3.36 optional.

# DE SOTO

CAR MODEL	Powermaster S-18	Fire Dome S-16
<b>ENGINE</b>		
No. Cyl-Head Type.....	6-L	V-8-I
Bore and Stroke (in).....	3-7/16x4-1/2	3-5/8x3-11/32
Displacement (cu in).....	250.6	276.1
AMA Horsepower.....	28.36	42.05
Max Horsepower @ rpm.....	116 @ 3600	160 @ 4400
Max Torque, lb-ft @ rpm.....	208 @ 1600	250 @ 2000
Max bmep, lb/sq in.....	125.1	136.5
Head Material.....	Cast Iron	Cast Iron
Compression Ratio.....	7.0	7.1
Comp Press, lb/sq in @ rpm....	120-150 @ 150	135-165 @ 150
Piston Material.....	AA	AA Steel Band
Bearing Material.....	Steel Backed Lead Base Babbitt	
<b>IGNITION</b>		
Spark Plug—Factory Eqpt.....	AL AR8	AL 4S-140
Alternate.....	AC 46, Champ J-8	AC 46, Champ J-8
Spark Plug Gap.....	.035"	.035"
Breaker Gap.....	.020"	.017"
Cam Angle.....	39° + 3	32° to 36° (1)
Firing Order.....	1-5-3-6-2-4	1-8-4-3-6-5-7-2
Timing—Crankshaft Degrees...	2° BTC	4° BTC
Adv Deg—Centrif—Vac.....	20-18	28-23
Adv Begins—Ends—Eng rpm....	700-2850	700-3800
Battery—Volts, Terminal Ground	6 Positive	6 Positive
<b>VALVES</b>		
Make and Material.....	Int Exh	Silicon—Chromium Steel Silicon—Chromium Steel
Tappet Ctr—Seat Angle.....	Int .003"H, 45° Exh .010"H, 45°	Hyd Lifters, 45° Hyd Lifters, 45°
Exhaust Seat Inserts.....	Yes	Yes
<b>CARBURETOR</b>		
Make, Model.....	B and B(Car) E9C1	B and B(Car) BBD-909S
Size, Type.....	1-1/2" Sgl DD	1-1/4" Dual DD
Float Level.....	5/64" (2)	9/32" (3)
Choke Control.....	Automatic	Automatic
<b>ENGINE LUBRICATION</b>		
Oil—Summer—Winter—SAE....	See DeSoto Instruction Book	
Normal Oil Press—lb @ mph...	50 @ 30	50 @ 30
Oil Filter—Type.....	ByP. RU	Shunt, RE
<b>CAPACITY</b>		
Oil.....(qt)	5	5 (4)
Water.....(qt)	15	22
Transmission.....(pt)	2-3/4 (5)	2-3/4 (5)
Rear Axle.....(pt)	3-1/4	3-1/2
Gasoline.....(gal)	17	17
<b>GENERAL DATA (6 Passenger Four-Door Sedan)</b>		
Wheelbase.....(in)	125-1/2	125-1/2
Over All Lgth Incl Bumpers (in)	213-3/8	213-3/8
Shipping Weight.....(lb)	3555	3705
Tire Size—Recm Press.....(lb)	7.60x15-24-24	7.60x15-24-24
Rear Axle Ratio—Type.....	3.9 Hyp (6)	3.73 Hyp (7)
<b>LOCATION CHASSIS SERIAL NO. Left Front Door Body Hinge Post</b>		
(1) Total for two-breaker distributor; 26° to 28° for each breaker.		
(2) From top of float chamber without gasket to top center of float.		
(3) From top of float chamber without gasket to top of each float.		
(4) With Fluid-Torque Drive, combined torque converter and crankcase capacity is 12 quarts.		
(5) ¾ pint additional with overdrive. 3 pints refill for Tip-Toe Shift transmissions.		
(6) With overdrive 4.3 standard, 4.1 optional. Various other ratios are used with automatic transmissions.		
(7) With overdrive 4.1 standard, 3.9 and 4.3 optional. Various other ratios are used with automatic transmissions.		

**DODGE**

CAR MODEL	Meadowbrook D-46, D-47	Coronet D-44, D-48	DODGE
ENGINE			
No. Cyl-Head Type.....	6-L	V-8-1	
Bore and Stroke (in).....	3-1/4x4-5/8	3-7/16x3-1/4	
Displacement (cu in).....	230.2	241.3	
AMA Horsepower.....	25.35	37.8	
Max Horsepower @ rpm.....	103 @ 3600	140 @ 4400	
Max Torque, lb-ft @ rpm.....	190 @ 1200	220 @ 2000	
Max bmep, lb sq in.....	127.5	137.5	
Head Material.....	Cast Iron	Cast Iron	
Compression Ratio.....	7.0	7.1	
Comp Press, lb sq in @ rpm.....	120-150 @ 150	135-165 @ 150	
Piston Material.....	AA	AA	
Bearing Material.....	Steel Backed Lead Base Babbitt		
IGNITION			
Spark Plug—Factory Eqpt.....	AL AR8	AL 48-140	
Alternate.....	AC 46, Champ J-8	AC 46, Champ J-8	
Spark Plug Gap.....	.035"	.035"	
Breaker Gap.....	.020"	.017"	
Cam Angle.....	39° ± 3	32° to 36° (1)	
Firing Order.....	1-5-3-6-2-4	1-8-4-3-6-5-7-2	
Timing—Crankshaft Degrees.....	2° BTC	4° BTC	
Adv Deg—Centrif—Vac.....	20-16	30-23	
Adv Begins—Ends—Eng rpm.....	700-2850	700-3500	
Battery—Volts, Terminal Ground	6 Positive	6 Positive	
VALVES			
Make and Material.....	Int Various Alloy Steels	Silicon-Chromium Steel	
	Exh Silicon—Chromium Steel		
Tappet Ctr—Seat Angle.....	Int .010"H, 45°	Hyd Lifters, 45°	
	Exh .010"H, 45°	Hyd Lifters, 45°	
Exhaust Seat Inserts.....	Yes	Yes	
CARBURETOR			
Make, Model.....	B and B (Car) D6H2	Strom WW3-108	
Size, Type.....	1-1 2" Sq DD (Special)	1-1 4" Dual DD	
Float Level.....	5/64" (2)	3/16" (3)	
Choke Control.....	Automatic	Automatic	
ENGINE LUBRICATION			
Oil—Summer—Winter—SAE.....	See Dodge Instruction Book		
Normal Oil Press—lb @ mph.....	45 @ 30	45 @ 30	
Oil Filter—Type.....	ByP, RE	Shunt, RE	
CAPACITY			
Oil.....(qt)	5	5 (4)	
Water.....(qt)	14	19	
Transmission.....(pt)	2-3/4 (5)	2-3/4 (5)	
Rear Axle.....(pt)	3-1/4	3-1/4	
Gasoline.....(gal)	17	17	
GENERAL DATA (6 Passenger Four-Door Sedan)			
Wheelbase.....(in)	119 (6)	119 (7)	
Over All Lgth Incl Bumpers (in)	201-3/8 (6)	201-3/8 (7)	
Shipping Weight.....(lb)	3205 (6)	3385 (7)	
Tire Size—Recm Press.....(lb)	6.70x15-24-24	7.10x15-24-24	
Rear Axle Ratio—Type.....	3.9 Hyp (8)	3.73 Hyp (9)	
LOCATION CHASSIS SERIAL NO Left Front Door Body Hinge Post			
(1) Total for two-breaker distributor; 26° to 28° dwell for each breaker.			
(2) From top of float chamber without gasket to top of float.			
(3) From top of float chamber without gasket to top of float at center.			
(4) For models with Gyro-Torque Drive, combined torque converter and crank-case capacity is 12 quarts.			
(5) 3/4 pint additional with overdrive. 3 pints refill for Gyro-Matic or Gyro-Torque transmissions.			
(6) Model D-47 (Suburban): wheelbase 114", over-all length 189-5 8", weight 3195.			
(7) Model D-48 (Suburban, Convertible, Diplomat): wheelbase 114", over-all length 191-1/4", weight (Diplomat) 3280.			
(8) 4.1 optional. 4.3 standard with overdrive.			
(9) 3.9 optional. 4.1 standard with overdrive in D-47. 4.3 standard with overdrive in D-48. Various other ratios are used with automatic transmissions.			

# FORD

CAR MODEL	Mainline Customline Six	Mainline Customline Crestline Eight
<b>ENGINE</b>		
No. Cyl—Head Type.....	6-1	V-8-L
Bore and Stroke (in).....	3.56 x 3.6	3-3/16 x 3-3/4
Displacement (cu in).....	215.3	239.4
AMA Horsepower.....	30.4	32.5
Max Horsepower @ rpm.....	101 @ 3500	110 @ 3800
Max Torque, lb-ft @ rpm.....	185 @ 1300-1700	196 @ 1900-2100
Max bmep, lb/sq in.....	129.5	123.5
Head Material.....	Cast Iron	Cast Iron
Compression Ratio.....	7.0	7.2
Comp Press, lb/sq in @ rpm...	128 @ 210	(1)
Piston Material.....	AA	AA
Bearing Material.....	Steel Backed Copper-Lead Alloy	
<b>IGNITION</b>		
Spark Plug—Factory Eqt.....	Champion H-10 AC 45L, AL AL7 or ARL8	Champion H-10 AC 45L, AL AL7 or ARL8
Alternate.....	.034" to .037"	.029" to .032"
Spark Plug Gap.....	.024" to .026"	.014" to .016"
Breaker Gap.....	35° to 38°	26° to 28.5°
Cam Angle.....	1-5-3-6-2-4	1-5-4-8-6-3-7-2
Firing Order.....	TDC	2° BTC
Timing—Crankshaft Degrees....	(2)	(3)
Adv Deg—Centrif—Vac.....		
Adv Begins—Ends—Eng rpm...		
Battery—Volts, Terminal Ground	6, Positive	6, Positive
<b>VALVES</b>		
Make and Material..... Int	Ford Sil = 1	Ford Sil = 1
Exh.....	Ford Nichrome Alloy	Ford Nichrome Alloy
Tappet Cir—Seat Angle..... Int	.015"H, 45°	.013" to .015" C, 45°
Exh.....	.015"H, 45°	.017" to .019"C, 45°
Exhaust Seat Inserts.....	None	None
<b>CARBURETOR</b>		
Make, Model.....	Holley 1904-P	Holley 2100
Size, Type.....	1-1/4" Sgl DD	1" Dual DD
Float Level.....	1.322" to 1.353" (4)	1.322" to 1.353" (4)
Choke Control.....	Manual	Manual
<b>ENGINE LUBRICATION</b>		
Oil—Summer—Winter—SAE....	See Ford Instruction Book	
Normal Oil Press—lb @ mph....	40-50 @ 30-40	40 @ 30-40
Oil Filter—Type.....	FF, RE	ByP, RE
<b>CAPACITY</b>		
Oil..... (qt) (5)	(5)	(5)
Water..... (qt) 15	22	22
Transmission..... (pt) 3 (6)	3 (6)	3 (6)
Rear Axle..... (pt) 3-1/2	3-1/2	3-1/2
Gasoline..... (gal) 17	17	17
<b>GENERAL DATA (6 Passenger Four-Door Sedan)</b>		
Wheelbase..... (in) 115	115	115
Over All Lgth Incl Bumpers. (in) 197.8	197.8	197.8
Shipping Weight..... (lb) 3260	3358	3358
Tire Size—Recm Press..... (lb) 6 70x15-26-23	6 70x15-26-23	6 70x15-26-23
Rear Axle Ratio—Type.....	3.9Hyp	3.9 Hyp
<b>LOCATION CHASSIS SERIAL NO.</b>		
	Left Front Door Pillar Post	
(1) 125 @ 220 with standard transmission, 116 @ 135 with Fordomatic.		
(2) Full vacuum actuated distributor—maximum advance with wide open throttle at 4000 rpm is 29° to 31-1/2°—at cruising torque maximum advance is 30-1/2° to 33-1/2°.		
(3) Full vacuum actuated distributor—maximum advance with wide open throttle at 4000 rpm is 20° to 22-1/2°—at cruising torque maximum advance is 24° to 27°.		
(4) From bowl cover flange to bottom of float in closed position.		
(5) 5 quarts dry including filter—4 quarts refill.		
(6) 4-1/2 pints when equipped with overdrive—Fordomatic requires 9 quarts.		
(7) 4.10 with overdrive 3.31 with Fordomatic transmission.		

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CAR MODEL	K-533	K-534
<b>ENGINE</b>		
No. Cyl-Head Type .....	4-L	6-L
Bore and Stroke (in).....	3-1/8x4-3/8	3-1/8x3-1/2
Displacement (cu in) .....	134.2	161
AMA Horsepower .....	15.63	23.44
Max Horsepower @ rpm.....	68 @ 4000	80 @ 3800
Max Torque, lb-ft @ rpm.....	109 @ 1800	133 @ 1600
Max bmep, lb/sq in.....	122.5	124.6
Head Material .....	Cast Iron	Cast Iron
Compression Ratio .....	7.00	7.00
Comp Press, lb/sq in @ rpm....	115-120 @ 185	120-130 @ 185
Piston Material .....	AA	AA
Bearing Material .....		Steel Backed Babbitt
<b>IGNITION</b>		
Spark Plug—Factory Eqpt .....	AL-A7	AL-A7
Alternate .....		AC 45, Champion J-8
Spark Plug Gap.....	.030"	.030"
Breaker Gap.....	.022"	.022"
Cam Angle .....	25°-34°	31°-37°
Firing Order .....	1-3-4-2	1-5-3-6-2-4
Timing—Crankshaft Degrees....	5°BTC	5°BTC
Adv Deg—Centrif—Vac.....	22-20	24-12
Adv Begins—Ends—Eng rpm....	600-3000	700-3000
Battery—Volts, Terminal Ground	6, Positive	6, Positive
<b>VALVES</b>		
Make and Material.....Int	Various 3140	Various 3140
Exh	Various 2112	Various 2112
Tappet Cir Seat Angle .... Int	.016°C, 45°	.016°C, 45°
Exh	.016°C, 45°	.016°C, 45°
Exhaust Seat Inserts.....	None	None
<b>CARBURETOR</b>		
Make, Model .....	Carter 820-SB	Carter 833-SB
Size, Type .....	1-1/4" Sgl DD	1-1/4" Sgl DD
Float Level .....	9/32" (1)	9/32" (1)
Choke Control .....	Manual	Manual
<b>ENGINE LUBRICATION</b>		
Oil—Summer—Winter—SAE ....	See Henry J Instruction Book	
Normal Oil Press—lb @ mph....	30 to 40 @ 30	30 to 40 @ 30
Oil Filter Type .....	Optional BvP, RE	Optional BvP, RE
<b>CAPACITY</b>		
Oil .....	(qt) 4	5
Water .....	(qt) 10-1/2 (2)	9-1/2 (2)
Transmission .....	(pt) 1-1/2 (3)	1-1/2 (3)
Rear Axle .....	(pt) 2-1/2	2-1/2
Gasoline .....	(gal) 13	13
<b>GENERAL DATA (5 Passenger Sedan)</b>		
Wheelbase .....	(in) 100	100
Over All Lgth Incl Bumpers (in)	181-3/4	182-1/8
Shipping Weight .....	(lb) 2405 (4)	2455 (4)
Tire Size Reem Press.....(lb)	5 90x15-24-20	5 90x15-24-20
Rear Axle Ratio—Type.....	4.27 (5)	4.10 (5)
<b>LOCATION CHASSIS SERIAL NO.</b>		
	Left Front Pillar Post	
(1) From top of float to bottom surface of float bowl cover without gasket.		
(2) One quart additional when equipped with a heater.		
(3) 3/4 pint additional when equipped with overdrive.		
(4) Add 40 pounds with overdrive, deck lid 15 pounds.		
(5) 4.55 when equipped with overdrive.		

# HUDSON

CAR MODEL	Jet 1C Super Jet 2C	Wasp Deluxe 4C
<b>ENGINE</b>		
No. Cyl-Head Type .....	6-L	6-L
Bore and Stroke (in) .....	3x4-3/4	3-9/16x3-7/8
Displacement (cu in) .....	202	232
AMA Horsepower .....	21.6	30.45
Max Horsepower @ rpm .....	104 @ 4000	112 @ 4000
Max Torque, lb-ft @ rpm .....	158 @ 1400	175 @ 1600
Max bmep, lb/sq in. ....	117.9	113.8
Head Material .....	Cast Iron (1)	Cast Iron (1)
Compression Ratio .....	7.5 (1)	6.7 (1)
Comp Press, lb/sq in @ rpm .....		
Piston Material .....	AA	AA
Bearing Material .....		Steel Backed Babbitt
<b>IGNITION</b>		
Spark Plug—Factory Eqpt .....	Champion H-10	Champion H-10
Alternate .....	AC 45L, AL	AL7 or ARL 8
Spark Plug Gap .....	.032"	.032"
Breaker Gap .....	.020"	.020"
Cam Angle .....	39°	39°
Firing Order .....	1-5-3-6-2-4	
Timing—Crankshaft Degrees....	TDC	TDC
Adv Deg—Centrif—Vac .....	29-15	20-10
Adv Begins—Ends—Eng rpm .....	600-3000	600-2400
Battery—Volts, Terminal Ground	6, Positive	6, Positive
<b>VALVES</b>		
Make and Material .....	Int Eaton 8645	Eaton 8645
	Exh Eaton 2112	Eaton 2112
Tappet Ctr—Seat Angle .....	Int .010"H, 45°	.010"H, 45°
	Exh .012"H, 46°	.012"H, 45°
Exhaust Seat Inserts .....	None	None
<b>CARBURETOR</b>		
Make, Model .....	CarWA1-2009S	CarWA1-749S
Size, Type .....	1-5/16" Sgl DD	1-1 2" Sgl DD
Float Level .....	1 1/2" (2)	1 1/2" (2)
Choke Control .....	Automatic	Automatic
<b>ENGINE LUBRICATION</b>		
Oil—Summer—Winter—SAE ....	See Hudson Instruction Book	
Normal Oil Press—lb @ mph....	40 @ 30	40 @ 30
Oil Filter—Type .....	None	None
<b>CAPACITY</b>		
Oil .....	(qt) 5 refill	7 refill
Water .....	(qt) 15 (3)	18-1/2 (3)
Transmission .....	(pt) 1-1/2 (4)	2-1/4 (4)
Rear Axle .....	(pt) 2-1/2	3-1/2
Gasoline .....	(gal) 15	20
<b>GENERAL DATA (6 Passenger Four-Door Sedan)</b>		
Wheelbase .....	(in) 105	119-7/8
Over All Lgth Incl Bumpers (in)	180-11/16	201-1/2
Shipping Weight .....	(lb) 2700	3380
Tire Size—Recm Press .....	(lb) 5.90x15-26-24 (5)	7.10x15-26-24 (6)
Rear Axle Ratio—Type .....	4.1 Hyp (7)	4.09 Hyp (8)
<b>LOCATION CHASSIS SERIAL NO</b>		
		Right Front Pillar Post

- (1) Aluminum head optional; 8.0 compression ratio for Jets and 7.2 for Wasp Deluxe.
- (2) From projection on bowl cover to soldered seam of float—with cover inverted and needle seated.
- (3) Add 1 quart when equipped with heater.
- (4) With overdrive; Jets 2-1/2 pints, Wasp Deluxe 3-1/2 pints with Hydra-Matic; Jets 10 quarts refill, Wasp Deluxe 11 quarts refill.
- (5) Jet 5.90x15 standard. Optional 6.40x15 on 15x4.50 rim. Super Jet 6.40x15.
- (6) 7.60x15 or 8.00x15 optional.
- (7) 4.27 with overdrive, 3.54 with Hydra-Matic. Optional: Conventional 4.27 or 3.31, Overdrive 4.1—3.54—3.31. Hydra-Matic 3.31.
- (8) 4.55 with overdrive, 3.07 with Hydra-Matic.

CAR MODEL	Wasp Super 5C	Hornet 7C
ENGINE		
No. Cyl-Head Type .....	6-L	6-L
Bore and Stroke (in) .....	3-9/16x4-3/8	3-13/16x4-1/2
Displacement (cu in) .....	262	308
AMA Horsepower .....	30.45	34.88
Max Horsepower @ rpm .....	127 @ 4000	145 @ 3800
Max Torque, lb-ft @ rpm .....	200 @ 1600	257 @ 1800
Max bmep, lb/sq in. ....	115.1	125.9
Head Material .....	Cast Iron (1)	Aluminum (1)
Compression Ratio .....	6.7 (1)	7.2 (1)
Comp Press, lb/sq in @ rpm .....		
Piston Material .....	AA	AA
Bearing Material .....		Steel Backed Babbitt
IGNITION		
Spark Plug—Factory Eqpt .....	Champion H-10	Champion H-11
Alternate .....	AC 45L, AL	AL7 or ARL8
Spark Plug Gap .....	.032"	.032"
Breaker Gap .....	.020"	.020"
Cam Angle .....	39°	39°
Firing Order .....		1-5-3-6-2-4
Timing—Crankshaft Degrees....	TDC	TDC
Adv Deg—Centrif—Vac .....	18-8	18-8
Adv Begins—Ends—Eng rpm .....	1000-4000	1000-4000
Battery—Volts, Terminal Ground	6, Positive	6, Positive
VALVES		
Make and Material.....Int	Eaton 8645	Eaton 8645
Exh	Eaton 2112	Eaton 2112
Tappet Ctr—Seat Angle.....Int	.010"H, 45°	.010"H, 45°
Exh	.012"H, 45°	.012"H, 45°
Exhaust Seat Inserts.....	None	None
CARBURETOR		
Make, Model .....	CarWGD-776S (2)	CarWGD-776S (2)
Size, Type .....	1-1/4" Dual DD	1-1/4" Dual DD
Float Level .....	3/16" (3)	3/16" (3)
Choke Control .....	Automatic	Automatic
ENGINE LUBRICATION		
Oil—Summer—Winter—SAE ...	See Hudson Instruction Book	
Normal Oil Press—lb @ mph...	40 @ 30	40 @ 30
Oil Filter—Type .....	None	None
CAPACITY		
Oil .....	(qt) 7 refill	7 refill
Water .....	(qt) 18-1/2 (4)	18-1/2 (4)
Transmission .....	(pt) 2-1/4 (5)	2-1/4 (5)
Rear Axle .....	(pt) 3-1/2	3-1/2
Gasoline .....	(gal) 20	20
GENERAL DATA (6 Passenger Four-Door Sedan)		
Wheelbase .....	(in) 119-7/8	123-7/8
Over All Lgth Incl Bumpers (in)	202-1/2	208-1/2
Shipping Weight .....	(lb) 3480	3570
Tire Size—Recm Press.....(lb)	7.10x15-26-24 (6)	7.10x15-26-24 (6)
Rear Axle Ratio—Type .....	4.09 (7)	4.09 (7)
LOCATION CHASSIS SERIAL NO		
	Right Front Pillar Post	

- (1) Wasp Super: 7.2 aluminum head optional. Hornet: 6.7 cast iron head optional.
- (2) Optional: Two-carburetor system; Wasp Super-Carter WA1-990S. Hornet-Carter WA1-968S.
- (3) From bowl cover to top of float—with cover inverted and needle seated.
- (4) Add one quart when equipped with heater.
- (5) 3-1/2 pints with overdrive Hydra-Matic requires 11 quarts.
- (6) Optional 7.60x15 or 8.00x15. Convertible brougham 7.60x15 standard.
- (7) Overdrive 4.55. Hydra-Matic 3.07.

**KAISER****CAR MODEL** 530, 531 and 532**ENGINE**

No. Cyl-Head Type.....	6-L
Bore and Stroke (in).....	3-5/16x4-3/8
Displacement (cu in).....	226.2
AMA Horsepower.....	28.3
Max Horsepower @ rpm.....	118 @ 3650
Max Torque, lb-ft @ rpm.....	200 @ 1800
Max bmep, lb/sq in.....	133.3
Head Material.....	Cast Iron
Compression Ratio.....	7.3
Comp Press, lb/sq in @ rpm.....	120 @ 70
Piston Material.....	AA
Bearing Material.....	Steel Backed Babbitt

**IGNITION**

Spark Plug—Factory Eqt.....	AL-A7
Alternate.....	AC 45, Champion J-8
Spark Plug Gap.....	.030
Breaker Gap.....	.022"
Cam Angle.....	31° to 37°
Firing Order.....	1-5-3-6-2-4
Timing—Crankshaft Degrees...	4° BTC
Adv Deg—Centrif—Vac.....	18-10
Adv Begins—Ends—Eng rpm....	600-3200
Battery-Volts, Terminal Ground	6, Positive

**VALVES**

Make and Material.....Int	Various 8645
Exh	Various 811 XCR
Tappet Clr—Seat Angle.....Int	.014" C, 30°
Exh	.014" C, 45°
Exhaust Seat Inserts.....	None

**CARBURETOR**

Make, Model.....	Car WGD999S
Size, Type.....	1-1/4" Dual DD
Float Level.....	1/4" (1)
Choke Control.....	Automatic

**ENGINE LUBRICATION**

Oil—Summer—Winter—SAE ...	See Kaiser Instruction Book
Normal Oil Press—lb @ mph...	35 @ 30
Oil Filter—Type.....	ByP, RU & RE

**CAPACITY**

Oil.....(qt)	5 (2)
Water.....(qt)	12-1 2 (3)
Transmission.....(pt)	2-1 2 (4)
Rear Axle.....(pt)	3-1 2
Gasoline.....(gal)	17

**GENERAL DATA (6 Passenger Four-Door Sedan)**

Wheelbase.....(in)	118-1 2
Over All Lgth Incl Bumpers (in)	211-1 3
Shipping Weight.....(lb)	3210 (5)
Tire Size—Recm Press.....(lb)	6.70x15-24-24
Rear Axle Ratio—Type.....	3.91

**LOCATION CHASSIS SERIAL NO.** Left Front Pillar Post

- (1) From top of float to bottom of float bowl cover.
- (2) 5 quarts refill—6 quarts with new filter.
- (3) Without heater. One quart additional with heater.
- (4) 3-1/2 with overdrive.
- (5) Add 115 pounds with Hydra-Matic, 40 pounds with overdrive.
- (6) 4.55 with overdrive, 3.31 with Hydra-Matic. Optional 4.03 or 4.27 with conventional transmission, 3.54 with Hydra-Matic.



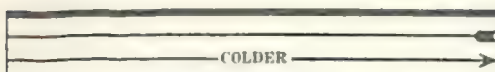


# SPARK PLUG HEAT

		← HOTTER →				
AC	14 mm	48 48X		46-5 46X 46	45 44-5 45L*	
	10 mm	M-3		106		
	18 mm	88*		86		
	7/8"	78 78S*		76 76S		
CHAM- PION	14 mm	J-14	J-12	J-11 H-11*	J-9 H-10*	
	10 mm	Y-8		Y-6		
	18 mm	10 Com-64*	9 Com.* C-15	C-7	8 Com 15 A	
	7/8"	3 Com.*	2 Com L.* 20	C-4		
AUTO- LITE	14 mm	A 14	AR10 AT10	A9	ARS ARLS* ATS	A7 AL7
	10 mm					P6 PR6
	18 mm		BT10 BR10		BTS BRS	
	7/8"		TT10		TT3	
TORQUE WRENCH CHART	Always use a spark plug socket wrench or a torque wrench. These wrenches are readily obtainable and are the only kind which will avoid distortion of the plug and insure the insulator against damage or breakage.					

\*Long reach.

# RANGE COMPARISONS

																						
44	43L*	43-5			14 mm	AC																
101					10 mm																	
					18 mm																	
74					7/8"																	
J-7 H-9*	J-6 H-8*	J-5	J-2		14 mm	CHAM- PION																
Y-4-A					10 mm																	
6 Com 7		5 Com H-17-A	H-16-A		18 mm																	
1 Com			0 Com		7/8"																	
AT6	AR5 ARL5*	A5 AL5	AR4 AT4	A3	14 mm	AUTO- LITE																
			P4 PR4		10 mm																	
BT6			BT4 BR4	BT3	18 mm																	
			TT4		7/8"																	
<p>Average torque wrench pressures recommended for standard plugs in vehicles. All pressures listed are based on spark plug and engine threads being clean.</p> <table><tr><td>Plug Thread</td><td>Cast Iron Heads</td><td>Aluminum Heads</td></tr><tr><td>10 mm</td><td>14 lb-ft</td><td>11 lb-ft</td></tr><tr><td>14 mm</td><td>30 lb-ft</td><td>27 lb-ft</td></tr><tr><td>18 mm</td><td>34 lb-ft</td><td>32 lb-ft</td></tr><tr><td>7/8"</td><td>37 lb-ft</td><td>35 lb-ft</td></tr></table>						Plug Thread	Cast Iron Heads	Aluminum Heads	10 mm	14 lb-ft	11 lb-ft	14 mm	30 lb-ft	27 lb-ft	18 mm	34 lb-ft	32 lb-ft	7/8"	37 lb-ft	35 lb-ft	TORQUE WRENCH CHART	
Plug Thread	Cast Iron Heads	Aluminum Heads																				
10 mm	14 lb-ft	11 lb-ft																				
14 mm	30 lb-ft	27 lb-ft																				
18 mm	34 lb-ft	32 lb-ft																				
7/8"	37 lb-ft	35 lb-ft																				

# NASH

CAR MODEL	Rambler 5310	Rambler with Hydra-Matic 5310
<b>ENGINE</b>		
No. Cyl-Head Type .....	6-L	6-L
Bore and Stroke (in).....	3-1/8x4	3-1/8x4-1/4
Displacement (cu in) .....	184.0	195.6
AMA Horsepower .....	23.44	23.44
Max Horsepower @ rpm.....	85 @ 3800	90 @ 3800
Max Torque, lb-ft @ rpm.....	150 @ 1600	150 @ 1600
Max bmep, lb/sq in.....	122.9	115.7
Head Material .....	Cast Iron	Cast Iron
Compression Ratio .....	7.25 (1)	7.30 (1)
Comp Press, lb/sq in @ rpm....	120 @ CR SP	120 @ CR SP
Piston Material .....	AA	AA
Bearing Material .....	Steel Backed Babbitt	
<b>IGNITION</b>		
Spark Plug—Factory Eqpt .....	AL-A7	AL-A7
Alternate .....	AC 44-5, Champion J-7	
Spark Plug Gap.....	.030"	.030"
Breaker Gap .....	.022"	.022"
Cam Angle .....	31° to 37°	31° to 37°
Firing Order .....	1-5-3-6-2-4	
Timing—Crankshaft Degrees....	4°BTC	4°BTC
Adv Deg—Centrif—Vac.....	22-17	22-17
Adv. Begin—Ends—Eng rpm....	600-2800	600-2800
Battery—Volts, Terminal Ground	6, Positive	6, Positive
<b>VALVES</b>		
Make and Material.....	Int 3140	3140
Exh 2112		2112
Tappet Ctr—Seat Angle.....	Int .015"H, 45°	.015"H, 45°
Exh .015"H, 45°		.015"H, 45°
Exhaust Seat Inserts.....	None	None
<b>CARBURETOR</b>		
Make, Model .....	CarYF-2014S	CarYF-2014S
Size, Type .....	1-1/4" Sgl DD	1-1/4" Sgl DD
Floot Level .....	1/2" (2)	1/2" (2)
Choke Control .....	Automatic	Automatic
<b>ENGINE LUBRICATION</b>		
Oil—Summer—Winter—SAE ....	See Nash Instruction Book	
Normal Oil Press—lb @ mph....	50 @ 30	50 @ 30
Oil Filter—Type .....	By-P, RE (3)	By-P, RE (3)
<b>CAPACITY</b>		
Oil .....	(qt) 4 refill	4 refill
Water .....	(qt) 12 (4)	12 (4)
Transmission .....	(pt) 1-1/2 (5)	16 refill
Rear Axle .....	(pt) 3	3
Gasoline .....	(gal) 20	20
<b>GENERAL DATA (5 Passenger Sedan)</b>		
Wheelbase .....	(in) 100	100
Over All Lgth Incl Bumpers (in)	185-3/8	185-3/8
Shipping Weight .....	(lb) (6)	(6)
Tire Size—Recm Press.....	(lb) 6.40x15-24-24 (7)	6.40x15-24-24 (7)
Rear Axle Ratio—Type.....	3.77 (8)	3.3 Hyp
<b>LOCATION CHASSIS SERIAL NO</b>		
Under Hood on Dash Panel		
(1) 7.5 optional.		
(2) From top of floot (at free end) to floot chamber cover flange.		
(3) Optional.		
(4) With heater.		
(5) 2-3/4 pints with overdrive.		
(6) Soft-top convertible 2550, hard-top convertible 2340, and station wagon 2635. Add 115 pounds for Hydra-Matic.		
(7) 6.40x15 custom, 5.90x15 other.		
(8) 4.4 optional. With overdrive 4.4 standard, 4.1 optional.		



# NASH

CAR MODEL	Statesman 5340	Ambassador 5360	Ambassador LeMans Dual Jetfire
<b>ENGINE</b>			
No. Cyl-Head Type .....	6-L	6-I	6-I
Bore and Stroke (in) .....	3-1/8x4-1/4	3-1/2x4-3/8	3-1/2x4-3/8
Displacement (cu in) .....	195.6	252.6	252.6
AMA Horsepower .....	23.4	29.4	29.4
Max Horsepower @ rpm .....	100 @ 3800	120 @ 3700	140 @ 4000
Max Torque, lb-ft @ rpm .....	155 @ 1600	220 @ 1600	230 @ 2000
Max bmep, lb/sq in. ....	119.4	131.3	137.2
Head Material .....	Cast Iron	Cast Iron	Aluminum
Compression Ratio .....	7.45	7.3 (1)	8.0
Comp Press, lb/sq in @ rpm .....	120 @ CR SP	130 @ CR SP	150 @ CR SP
Piston Material .....	AA	AA	AA
Bearing Material .....	Steel Backed Babbitt		
<b>IGNITION</b>			
Spark Plug—Factory Eqpt .....	AL A7	AL A7	AL AL5
Alternate .....	AC 44-5, Champ J-7		AC 43L Champ H-8
Spark Plug Gap .....	.030"	.030"	.030"
Breaker Gap .....	.022"	.022"	.022"
Cam Angle .....	31° to 37°	31° to 37°	31° to 37°
Firing Order .....		1-5-3-6-2-4	
Timing—Crankshaft Degrees ...	4°BTC	TDC	TDC
Adv Deg—Centrif—Vac .....	22-17	28-12	28-12
Adv Begins—Ends—Eng rpm ...	600-2800	600-2700	600-2700
Battery—Volts, Terminal Ground	6, Positive	6, Positive	6, Positive
<b>VALVES</b>			
Make and Material .....	Int 3140 Exh 2112	3140 2112	3140 2112
Tappet Clr—Seat Angle .....	Int .015"H, 45° Exh .015"H, 45°	.012"H, 30° .016"H, 45°	.012"H, 30° .016"H, 45°
Exhaust Seat Inserts .....	None	None	Yes
<b>CARBURETOR</b>			
Make, Model .....	Car WCD2034S	Car YH895S	(2)
Size, Type .....	1-3/16" Dual DD	1-1/2" Sgl SD	(2)
Float Level .....	5/32" (3)	3/8" (3)	7/16" (3)
Choke Control .....	Automatic	Automatic	Automatic
<b>ENGINE LUBRICATION</b>			
Oil—Summer—Winter—SAE ....		See Nash Instruction Book	
Normal Oil Press—lb @ mph ...	50 @ 30	50 @ 30	50 @ 30
Oil Filter—Type .....	ByP, RE (4)	ByP, RE (4)	ByP, RE (4)
<b>CAPACITY</b>			
Oil .....	(qt) 4	6	6
Water .....	(qt) 15 (5)	18 (5)	18 (5)
Transmission .....	(pt) 2-1/4 (6)	2-1/4 (6)	2-1/4 (6)
Rear Axle .....	(pt) 3	4	4
Gasoline .....	(gal) 20	20	20
<b>GENERAL DATA (6 Passenger Four-Door Sedan)</b>			
Wheelbase .....	(in) 114-1/4	121-1/4	121-1/4
Over All Lgth Incl Bumpers (in) ..	202-1/4	209-1/4	209-1/4
Shipping Weight .....	(lb) 3015	3480	3480
Tire Size—Recm Press .....	(lb) 6.70x15-24-24	7.10x15-24-24	7.10x15-24-24
Rear Axle Ratio—Type .....	4.4 (7)	4.1 (8)	4.1 (8)

LOCATION CHASSIS SERIAL NO.	Under Hood on Dash Panel
(1) 7.5 Optional.	
(2) Two single side draft 1-1/2" Carter carburetors, Model YH-973-S front and YH-974-S rear.	
(3) From bowl cover to top of float—with bowl cover assembly inverted and needle seated.	
(4) Optional.	
(5) With heater.	
(6) 1-1/4 pints additional with overdrive, 11 quarts reoil with Hydra-Matic	
(7) Conventional transmission 4.1 optional. Overdrive 4.9 standard, 4.4 optional, Hydra-Matic 3.3	
(8) Overdrive 4.4 standard, 4.1 optional, Hydra-Matic 3.15.	

Brief Passenger Car Data for 1953

February 15, 1953

# OLDSMOBILE CAR MODEL

	DeLuxe 88	Super 88	98
<b>ENGINE</b>			
No. Cyl-Head Type	V-8-I	V-8-I	V-8-I
Bore and Stroke (in)	3-3/4x3-7/16	3-3/4x3-7/16	3-3/4x3-7/16
Displacement (cu in)	303.7	303.7	303.7
AMA Horsepower	45	45	45
Max Horsepower @ rpm	150 @ 3600	165 @ 3600	165 @ 3600
Max Torque, lb-ft @ rpm	280 @ 1800	284 @ 1800	284 @ 1800
Max bmep, lb/sq in	139.0	141.0	141.0
Head Material	Cast Iron	Cast Iron	Cast Iron
Compression Ratio	8.0	8.0	8.0
Comp Press, lb/sq in @ rpm		190 to 200 @ 1000	
Piston Material		AA—Steel Strut	
Bearing Material		Steel Backed Durex	
<b>IGNITION</b>			
Spark Plug—Factory Eqpt.	AC 46-5	AC 46-5	AC 46-5
Alternate	Champion	J-11, Auto-Lite	A9 or AR10
Spark Plug Gap	.030"	.030"	.030"
Breaker Gap	.016"	.016"	.016"
Cam Angle	26° to 33°	26° to 33°	26° to 33°
Firing Order		1-8-7-3-6-5-4-2	
Timing—Crankshaft Degrees	2-1/2° BTC	2-1/2° BTC	2-1/2° BTC
Adv Deg—Centrif—Vac	30-20	30-20	30-20
Adv Begins—Ends—Eng rpm	600-3700	600-3700	600-3700
Battery—Volts, Terminal Ground	12, Negative	12, Negative	12, Negative
<b>VALVES</b>			
Make and Material	Int Exh	Various 3140 and SAE 8645 S11 XCR	
Tappet Clr—Seat Angle	Int Exh	Hydraulic Lifters, 45° Hydraulic Lifters, 45°	
Exhaust Seat Inserts	None	None	None
<b>CARBURETOR</b>			
Make, Model	Carter WGD	RP4GC or Car WCFB	
Size, Type	1-7/16" Dual DD	1-5/16" DD 4 Barrel	
Float Level	1/4" ± 1/64" (1)	(2)	
Choke Control	Automatic	Automatic	Automatic
<b>ENGINE LUBRICATION</b>			
Oil—Summer—Winter—SAE	See Oldsmobile Instruction Book		
Normal Oil Press—lb @ mph	35 to 45 @ 50	35 to 45 @ 50	35 to 45 @ 50
Oil Filter—Type	FF, RE (3)	FF, RE (3)	FF, RE (3)
<b>CAPACITY</b>			
Oil	(qt) 5	5	5
Water	(qt) 21-1/2	21-1/2	21-1/2
Transmission	(pt) 2 (4)	2 (4)	2 (4)
Rear Axle	(pt) 4-3/4	4-3/4	4-3/4
Gasoline	(gal) 18	18	18
<b>GENERAL DATA (6-Passenger Four-Door Sedan)</b>			
Wheelbase	(in) 120	120	124
Over All Lgth Incl Bumpers	(in) 204	204	215
Shipping Weight	(lb) 3648 (5)	3681 (5)	3789 (5)
Tire Size—Reem Press.	(lb) 7.60x15-24-22	7.60x15-24-22	7.60x15-24-22
Rear Axle Ratio—Type	3.64 (6)	3.64 (6)	3.64 (7)
<b>LOCATION CHASSIS SERIAL NO. Left Front Door Pillar Post</b>			

- (1) From flange of cover to top of float.
- (2) Rochester: 1-9/16" from cover gasket to bottom of float with bowl cover inverted and needle seated. Carter: 3/16" from machined face of cover to top of float with bowl cover inverted and needle seated.
- (3) Oil filter factory installed at extra cost.
- (4) Hydra-Matic requires 10-1/2 quarts for refill.
- (5) Add 100 pounds for Hydra-Matic.
- (6) 3.90 optional. 3.23 standard with Hydra-Matic, 3.07 optional.
- (7) 3.90 optional. 3.42 standard with Hydra-Matic, 3.07 optional.

# PLYMOUTH

CAR MODEL	Cambridge P-24-1	Cranbrook P-24-2
<b>ENGINE</b>		
No. Cyl-Head Type.....	6-L	6-L
Bore and Stroke (in).....	3-1/4x4-3/8	3-1/4x4-3/8
Displacement (cu in).....	217.8	217.8
AMA Horsepower.....	25.35	25.35
Max Horsepower @ rpm.....	100 @ 3600	100 @ 3600
Max Torque, lb-ft @ rpm.....	177 @ 1200	177 @ 1200
Max bmep, lb/sq in.....	122.5	122.5
Head Material.....	Cast Iron	Cast Iron
Compression Ratio.....	7.1	7.1
Comp Press, lb/sq in @ rpm.....	120-150 @ 150	120-150 @ 150
Piston Material.....	AA	AA
Bearing Material.....	Steel Backed Lead Base Babbitt	
<b>IGNITION</b>		
Spark Plug—Factory Eqpt.....	AL AR8	AL AR8
Alternate.....	AC 46, Champ J-8	AC 46, Champ J-8
Spark Plug Gap.....	.035"	.035"
Breaker Gap.....	.020"	.020"
Cam Angle.....	39° + 3	39° + 3
Firing Order.....	1-5-3-6-2-4	1-5-3-6-2-4
Timing—Crankshaft Degrees...	2° BTC	2° BTC
Adv Deg—Centrif—Vac.....	20-16	20-16
Adv Begins—Ends—Eng rpm....	700-2850	700-2850
Battery—Volts, Terminal Ground	6 Positive	6 Positive
<b>VALVES</b>		
Make and Material.....	Int Exh	Various Alloy Steels Silicon—Chromium Steel
Tappet Ctr—Seat Angle.....	Int .010"H, 45° Exh .010"H, 45°	.010"H, 45° .010"H, 45°
Exhaust Seat Inserts.....	Yes	Yes
<b>CARBURETOR</b>		
Make, Model.....	Ball and Ball (Carter) D6H2	
Size, Type.....	1-1/2" Sgl DD (Special)	
Float Level.....	5/64" (1)	5/64" (1)
Choke Control.....	Automatic	Automatic
<b>ENGINE LUBRICATION</b>		
Oil—Summer—Winter—SAE....	See Plymouth	Instruction Book
Normal Oil Press—lb @ mph...	45 @ 45	45 @ 45
Oil Filter—Type.....	None	ByP. RU
<b>CAPACITY</b>		
Oil.....(qt)	5	5
Water.....(qt)	13	13
Transmission.....(pt)	2-3/4 (2)	2-3/4 (2)
Rear Axle.....(pt)	3-1/4	3-1/4
Gasoline.....(gal)	17	17
<b>GENERAL DATA (6 Passenger Four-Door Sedan)</b>		
Wheelbase.....(in)	114	114
Over All Lgth Incl Bumpers (in)	189-1/8	189-1/8
Shipping Weight.....(lb)	2970	3007
Tire Size—Recm Press.....(lb)	6.70x15-24-24	6.70x15-24-24
Rear Axle Ratio—Type.....	3.73 Hyp (3)	3.73 Hyp (3)
<b>LOCATION CHASSIS SERIAL NO. Left Front Door Body Hinge Post</b>		

(1) From top of float chamber without gasket to top of float.

(2) 3/4 pint additional with overdrive; with Hy-Drive, engine and torque converter have a combined oil system and require ten quarts of oil.

(3) 4.1 with overdrive, 3.73 with torque converter.

# PACKARD

CAR MODEL	Packard Clipper 2601	Packard Clipper Deluxe 2611	Packard Caribbean Convertible Mayfair 2631
<b>ENGINE</b>			
No. Cyl-Head Type.....	8-L	8-L	8-L
Bore and Stroke (in).....	3-1/2x3-3/4	3-1/2x4-1/4	3-1/2x4-1/4
Displacement (cu in).....	288	327	327
AMA Horsepower.....	39.2	39.2	39.2
Max Horsepower @ rpm.....	150 @ 4000	160 @ 3600	180 @ 4000
Max Torque, lb-ft @ rpm.....	260 @ 2200	295 @ 2000	300 @ 2000
Max bmep, lb/sq in.....	136.0	138.0	138.3
Head Material.....	Cast Iron	Cast Iron	Cast Iron
Compression Ratio.....	7.7	8.0	8.0
Comp Press, lb/sq in @ rpm.....	150 @ 150	150 @ 150	150 @ 150
Piston Material.....	AA	AA	AA
Bearing Material.....	Steel Backed Babbitt Alloy		
<b>IGNITION</b>			
Spark Plug—Factory Eqpt.....	AL-A7, AC 46-5, or Champion J-8		
Alternate.....			
Spark Plug Gap.....	.023" to .028"	.023" to .028"	.023" to .028"
Breaker Gap.....	.016"	.016"	.016"
Cam Angle.....	31°	31°	31°
Firing Order.....	1-6-2-5-8-3-7-4		
Timing—Crankshaft Degrees ...	6°BTC	6°BTC	6°BTC
Adv Deg—Centrif—Vac.....	32-20	32-20	32-20
Adv Begins—Ends—Eng rpm....	600-3200	600-3200	600-3200
Battery-Volts, Terminal Ground	6, Positive	6, Positive	6, Positive
<b>VALVES</b>			
Make and Material.....Int	Eaton 3140 or 8645		
Exh.....	Eaton 2112 or Rich 2112N		
Tappet Clr—Seat Angle.....Int	.007"H, 30°	.007"H, 30°	Hyd Lifters, 30°
Exh.....	.010"H, 45°	.010"H, 45°	Hyd Lifters, 45°
Exhaust Seat Inserts.....	None	None	None
<b>CARBURETOR</b>			
Make, Model.....	Car WGD784S	Car WGD928S	Car WCFB985S
Size, Type.....	1-1/4" Dual DD	1-1/4" Dual DD	1-1/16" Four Barrel
Float Level.....	13.64" (1)	13.64" (1)	5.32" (1)
Choke Control.....	Automatic	Automatic	Automatic
<b>ENGINE LUBRICATION</b>			
Oil—Summer—Winter—SAE ....	See Packard Instruction Book		
Normal Oil Press—lb @ mph....	40 @ 30	40 @ 30	40 @ 30
Oil Filter—Type.....	ByP, RE (2)	ByP, RE (2)	ByP, RE
<b>CAPACITY</b>			
Oil.....(qt)	7	7	7
Water.....(qt)	20 (3)	20 (3)	20 (3)
Transmission.....(pt)	2 (4)	2 (4)	2 (4)
Rear Axle.....(pt)	3-3/4	3-3/4	3-3/4
Gasoline.....(gal)	20	20	20
<b>GENERAL DATA (6 Passenger Four-Door Sedan)</b>			
Wheelbase.....(in)	122	122	122
Over All Lgth Incl Bumpers (in)	213-3/32	213-3/32	213-3/32
Shipping Weight.....(lb)	3715 (7)	3745 (7)	(5) (7)
Tire Size—Recm Press.....(lb)	7.60x15-24-24	7.60x15-24-24	8.00x15-24-24
Rear Axle Ratio—Type.....	3.9 Hyp (6)	3.9 Hyp (6)	3.9 Hyp (6)
<b>LOCATION CHASSIS SERIAL NO.</b>			
	Left Front Door Hinge Pillar		
(1) Measured from float to cover.			
(2) Optional at extra cost.			
(3) 20-1/2 with heater.			
(4) 3-1/4 pints with overdrive. Ultramatic transmission—12 quarts.			
(5) Mayfair 3960, Convertible coupe 4110, Caribbean (Convertible) 4150.			
(6) 4.1 with overdrive. Ultramatic 2601—3.54, 2611—3.23, 2631—3.54.			
(7) 150# additional with Ultramatic.			



# PACKARD

CAR MODEL	Packard Cavaller 2602	Packard Patrician 2606	Packard 2626
ENGINE			
No. Cyl-Head Type.....	8-L	8-L	8-L
Bore and Stroke (in).....	3-1/2x4-1/4	3-1/2x4-1/4	3-1/2x4-1/4
Displacement (cu in).....	327	327	327
AMA Horsepower.....	39.2	39.2	39.2
Max Horsepower @ rpm.....	180 @ 4000	180 @ 4000	180 @ 4000
Max Torque, lb-ft @ rpm.....	300 @ 2000	300 @ 2000	300 @ 2000
Max bmepp, lb/sq in.....	138.3	138.3	138.3
Head Material.....	Cast Iron	Cast Iron	Cast Iron
Compression Ratio.....	8.0	8.0	8.0
Comp Press, lb/sq in @ rpm.....	150 @ 150	150 @ 150	150 @ 150
Piston Material.....	AA	AA	AA
Bearing Material.....	Steel Backed Babbitt Alloy		
IGNITION			
Spark Plug—Factory Eqpt.....	AL-A7, AC 46-5, or Champion J-8		
Alternate.....			
Spark Plug Gap.....	.023" to .028"	.023" to .028"	.023" to .028"
Breaker Gap.....	.016"	.017"	.017"
Cam Angle.....	31°	27°	27°
Firing Order.....		1-6-2-5-8-3-7-4	
Timing—Crankshaft Degrees....	6°BTC	6°BTC	6°BTC
Adv Deg—Centrif—Vac.....	32-20	30-26	30-26
Adv Begins—Ends—Eng rpm....	600-3200	500-2800	500-2800
Battery-Volts, Terminal Ground	6, Positive	6, Positive	6, Positive
VALVES			
Make and Material.....Int		Eaton 3140 or 8645	
Exh		Eaton 2112 or Rich 2112N	
Tappet Ctr—Seat Angle.....Int		Hydraulic Lifters, 30°	
Exh		Hydraulic Lifters, 45°	
Exhaust Seat Inserts.....	None	None	None
CARBURETOR			
Make, Model.....		Carter WCFB 985-S	
Size, Type.....		1-1/16" Four Barrel Down Draft	
Float Level.....		5/32" Float to Cover	
Choke Control.....	Automatic	Automatic	Automatic
ENGINE LUBRICATION			
Oil—Summer—Winter—SAE....	See Packard Instruction Book		
Normal Oil Press—lb @ mph....	40 @ 30	40 @ 30	40 @ 30
Oil Filter—Type.....	ByP, RE	ByP, RE	ByP, RE
CAPACITY			
Oil.....(qt) 7	7	7	7
Water.....(qt) 20 (1)	20 (1)	20 (1)	20 (1)
Transmission.....(pt) 2 (2)	24	2 (2)	
Rear Axle.....(pt) 3-3/4	3-3/4	3-3/4	3-3/4
Gasoline.....(gal) 20	20	20	20
GENERAL DATA (6 Passenger Four-Door Sedan)			
Wheelbase.....(in) 127	127	149	
Over All Lgth Incl Bumpers (in)	218-5/32	218-5/32	240-5/32
Shipping Weight.....(lb) 3960 (5)	4190		
Tire Size—Recm Press.....(lb) 8 00x15-24-24	8.00x15-24-24	8.00x15-24-24	8.20x15-26-26
Rear Axle Ratio—Type.....	3.9 Hyp (3)	3.54 Hyp	4.1 Hyp (4)
LOCATION CHASSIS SERIAL NO.			
(1) 20-1/2 with heater.	Left Front Door Hinge Pillar		
(2) 3-1/4 pints with overdrive. Ultramatic—12 quarts.			
(3) Overdrive 4.1, Ultramatic 3.54.			
(4) Overdrive 4.55, Ultramatic 3.9			
(5) 150# additional with Ultramatic.			

PONTIAC		25	27
CAR MODEL		Chieftain 6	Chieftain 8
ENGINE			
No. Cyl-Head Type.....	6-L	8-L	
Bore and Stroke (in).....	3-9/16 x 4	3-3/8 x 3-3/4	
Displacement (cu in).....	230.2	268.4	
AMA Horsepower.....	30.4	36.4	
Max Horsepower @ rpm.....	118 @ 3800 (1)	122 @ 3600 (1)	
Max Torque, lb-ft @ rpm.....	197 @ 2000 (1)	227 @ 2200 (1)	
Max bmep, lb/sq in.....	124.0 (1)	127.5 (1)	
Head Material.....	Cast Iron	Cast Iron	
Compression Ratio.....	7.7 (2)	7.7 (3)	
Comp Press, lb/sq in @ rpm....	(4)	(4)	
Piston Material.....	AA	CNA	
Bearing Material.....	Thin Babbitt on Steel		
IGNITION			
Spark Plug—Factory Eqpt.....	AC 44-5	AC 44-5	
Alternate.....	AL A7 or AR8	Champ J-8	
Spark Plug Gap.....	.025"	.025"	
Breaker Gap.....	.022"	.016"	
Cam Angle.....	37°	30°	
Firing Order.....	1-5-3-6-2-4	1-6-2-5-8-3-7-4	
Timing—Crankshaft Degrees....	(5)	(6)	
Adv Deg—Centrif—Vac.....	24-24 (7)	22-22	
Adv Begins—Ends—Eng rpm....	600-4000 (7)	500-3760	
Battery—Volts, Terminal Ground	6, Negative	6, Negative	
VALVES			
Make and Material.....	Int Rich V Steel or TP 3140 or 8440	Exh Rich 2112 or TP S11 XB	
Tappet Ctr—Seat Angle.....	Int .011"—.013"H, 30°	.011"—.013"H, 30°	
	Exh .011"—.013"H, 45°	.011"—.013"H, 45°	
Exhaust Seat Inserts.....	None	None	
CARBURETOR			
Make, Model.....	Car WCD-2010-S	Car WCD-719SA	
Size, Type.....	1-3/16" Dual DD	1-3/16" Dual DD	
Float Level.....	5/32" (8)	3/16" (8)	
Choke Control.....	Automatic	Automatic	
ENGINE LUBRICATION			
Oil—Summer—Winter—SAE.....	See Pontiac Instruction Book		
Normal Oil Press—lb @ mph....	35-40 @ 40	35-40 @ 40	
Oil Filter—Type.....	FF	FF	
CAPACITY			
Oil.....(qt)	5 (Refill)	5 (Refill)	
Water.....(qt)	18-1/4	18-3/4	
Transmission.....(pt)	1-3/4 (9)	1-3/4 (9)	
Rear Axle.....(pt)	3-1/4	3-1/4	
Gasoline.....(gal)	20	20	
GENERAL DATA (6 Passenger Four-Door Sedan)			
Wheelbase.....(in)	122	122	
Over All Lgh Incl Bumpers. (in)	202-11/16	202-11/16	
Shipping Weight.....(lb)	3381 (10)	3456 (10)	
Tire Size—Recm Press.....(lb)	7.10x15-24-24 (11)	7.10x15-24-24 (11)	
Rear Axle Ratio—Type.....	4.1 Hyp (12)	3.9 Hyp (12)	
LOCATION CHASSIS SERIAL NO. Left Front Pillar Post			
(1) Power data given for 7.7 compression ratio which is standard on all Hydra-Matic equipped cars.			
(2) 7.0 compression ratio standard with Synchro-Mesh transmission, 7.7 optional.			
(3) 6.8 compression ratio standard with Synchro-Mesh transmission, 7.7 optional.			
(4) 139 to 158 @ Cr Sp with 7.7 compression ratio, 123 to 141 @ Cr Sp with 6.8 and 7.0 compression ratios.			
(5) 3° BTC with 7.7 compression ratio, 3° BTC with 7.0 compression ratio			
(6) 3° BTC with 7.7 compression ratio, 6° BTC with 6.8 compression ratio			
(7) Data shown for 7.7 compression ratio. For 7.0 advance begins at 800 rpm—maximum centrifugal is 25° @ 4000—maximum vacuum 24".			
(8) Bowl cover to seam of float with bowl cover assembly inverted.			
(9) Hydra-Matic transmission refill requires 11 quarts.			
(10) 125 pounds additional when equipped with Hydra-Matic drive.			
(11) 7.60 x 15 tires optional.			
(12) 3.08 with Hydra-Matic drive.			
Brief Passenger Car Data for 1953			

# STUDEBAKER

CAR MODEL	Champion 14G	Commander 4H	Land Cruiser 4H
<b>ENGINE</b>			
No Cyl-Head Type.....	6-L	V-8-I	V-8-I
Bore and Stroke (in).....	3x4	3-3/8x3-1/4	3-3/8x3-1/4
Displacement (cu in).....	169.6	232.6	232.6
AMA Horsepower.....	21.6	36.4	36.4
Max Horsepower @ rpm.....	85 @ 4000	120 @ 4000	120 @ 4000
Max Torque, lb-ft @ rpm.....	138 @ 2400	190 @ 2000	190 @ 2000
Max bmeq, lb/sq in.....	122.8	127.5	127.5
Head Material.....	Cast Iron	Cast Iron	Cast Iron
Compression Ratio.....	7.0 (1)	7.0 (1)	7.0 (1)
Comp Press, lb/sq in @ rpm.....	120 @ 150	120-140 @ 150	120-140 @ 150
Piston Material.....	AA	AA	AA
Bearing Material.....	Steel Backed Babbitt Lined		
<b>IGNITION</b>			
Spark Plug—Factory Eqpt.....	Champion J-7	Champion H-10	Champion H-10
Alternate.....	AC 44, AL A5	AC 45L, AL AL7	AC 45L, AL AL7
Spark Plug Gap.....	.023" to .028"	.033" to .038"	.033" to .038"
Breaker Gap.....	.020"	.013" to .018"	.013" to .018"
Cam Angle.....	38° to 40°	28° to 34°	28° to 34°
Firing Order.....	1-5-3-6-2-4	1-8-4-3-6-5-7-2	
Timing—Crankshaft Degrees.....	2° BTC	4° BTC	4° BTC
Adv Deg—Centrif—Vac.....	14-18	32-16	32-16
Adv Begins—Ends—Eng rpm.....	800-2600	600-2900	600-2900
Battery—Volts, Terminal Ground.....	6, Positive	6, Positive	6, Positive
<b>VALVES</b>			
Make and Material.....	Int 2112 Exh 2112	Rich or Eaton Chrome Nickel Steel 2112N	Chrome Nickel Steel 2112N
Tappet Clr—Seat Angle.....	Int .016" C, 45° Exh .016" C, 45°	.023" to .025" C, 45°	.023" to .025" C, 45°
Exhaust Seat Inserts.....	None	None	None
<b>CARBURETOR</b>			
Make, Model.....	Car WE989S	Strom WWU VI-26	
Size, Type.....	1-1/4" Sgl DD	1-1/8" Dual DD	
Float Level.....	3/8" (2)	(3)	
Choke Control.....	Automatic	Automatic	Automatic
<b>ENGINE LUBRICATION</b>			
Oil—Summer—Winter—SAE.....	See Studebaker Instruction Book		
Normal Oil Press—lb @ mph.....	40 @ 25-30	40 @ 25-30	40 @ 25-30
Oil Filter—Type.....	ByP, RE (4)	ByP, RE (4)	ByP, RE
<b>CAPACITY</b>			
Oil.....(qt)	5	6	6
Water.....(qt)	10	17-1/4	17-1/4
Transmission.....(pt)	1.6 (5)	2.4 (5)	2.4 (5)
Rear Axle.....(pt)	2-1/2	3	3
Gasoline.....(gal)	18	18	18
<b>GENERAL DATA (6-Passenger Four-Door Sedan)</b>			
Wheelbase.....(in)	116-1/2 (6)	116-1/2 (6)	120-1/2
Over All Lgth Incl Bumpers.....(in)	198-9/16 (6)	198-9/16 (6)	202-9/16
Shipping Weight.....(lb)	2735 (7)	3075 (8)	3180 (8)
Tire Size—Recm Press.....(lb)	6-40x15-26-24	7-10x15-26-22	7-10x15-26-22
Rear Axle Ratio—Type.....	4.10 Hyp (9)	4.09 Hyp (10)	4.09 Hyp (10)
<b>LOCATION CHASSIS SERIAL NO. Left Front Door Hinge Pillar Post</b>			
(1) 7.5 optional on all models, 7.5 standard on Champion with automatic transmissions.			
(2) Between boss on bowl cover and far edge of float seam.			
(3) Place float level gage J-5475 on carburetor body across center of float while holding the float lip firmly against the needle valve.			
(4) Factory installed at extra cost.			
(5) 2.75 with overdrive on Champion, 3.4 with overdrive on V-8's. Automatic transmission requires 9.5 quarts.			
(6) 120-1/2 wheelbase and 201-15/16 overall length for all 2-door coupes and all 2-door hard top coupes.			
(7) Add 40 pounds for overdrive, 105 pounds for Automatic drive.			
(8) Add 40 pounds for overdrive, 80 pounds for Automatic drive.			
(9) 4.56 with overdrive, 4.10 with Automatic drive.			
(10) 4.55 with overdrive, 3.54 with Automatic drive.			

Brief Passenger Car Data for 1953

February 15, 1953

# WILLYS

CAR MODEL	675A	685A
<b>ENGINE</b>		
No. Cyl-Head Type .....	6-L	6-F
Bore and Stroke (in).....	3-1/8x3-1/2	3-1/8x3-1/2
Displacement (cu in) .....	161	161
AMA Horsepower .....	23.44	23.44
Max Horsepower @ rpm.....	75 @ 4000	90 @ 4200
Max Torque, lb-ft @ rpm.....	125 @ 2000	135 @ 1600
Max bmep, lb/sq in.....	117.2	126.4
Head Material .....	Cast Iron	Cast Iron
Compression Ratio .....	6.9	7.6
Comp Press, lb/sq in @ rpm....	140 @ 185	155 @ 185
Piston Material .....	AA	AA
Bearing Material .....	Steel Backed, Babbitt Lined	
<b>IGNITION</b>		
Spark Plug—Factory Eqpt .....	Champion J-8	Champion J-8
Alternate .....	AC 45, AL	A7 or AR8
Spark Plug Gap.....	.030"	.030"
Breaker Gap .....	.020"	.020"
Cam Angle .....	39°	39°
Firing Order .....	1-5-3-6-2-4	1-5-3-6-2-4
Timing—Crankshaft Degrees....	5°BTC	5°BTC
Adv Deg—Centrif—Vac.....	19-12	19-12
Adv Begins—Ends—Eng rpm....	600-2600	600-2600
Battery—Volts, Terminal Ground	6, Negative	6, Negative
<b>VALVES</b>		
Make and Material.....Int	AISI5150	AISI5150
Exh	Various 2112	Various 2112
Tappet Clr—Seat Angle.....Int	.016"C, 45°	.018"C, 45°
Exh	.016"C, 45°	.016"C, 45°
Exhaust Seat Inserts.....	None	None
<b>CARBURETOR</b>		
Make, Model .....	Car YF-937S	Car YF-924S
Size, Type .....	1-1/4" Sgl DD	1-1/4" Sgl DD
Float Level .....	9/32" (1)	9/32" (1)
Choke Control .....	Manual	Manual
<b>ENGINE LUBRICATION</b>		
Oil—Summer—Winter—SAE ...	See Willys Instruction Book	
Normal Oil Press—lb @ mph...	35 @ 35	35 @ 35
Oil Filter—Type .....	(2)	(2)
<b>CAPACITY</b>		
Oil .....	(qt) 5	5
Water .....	(qt) 11	11
Transmission .....	(pt) 1-1/2 (3)	1-1/2 (3)
Rear Axle .....	(pt) 2-1/2	2-1/2
Gasoline .....	(gal) 18	18
<b>GENERAL DATA (6 Passenger Four-Door Sedan)</b>		
Wheelbase .....	(in) 108	108
Over All Lgth Incl Bumpers (in)	180-7/8	180-7/8
Shipping Weight .....	(lb) 2511	2588
Tire Size—Recm Press.....	(lb) 6.40x15-24-24	6.40x15-24-24
Rear Axle Ratio—Type.....	4.1 Hyp (4)	4.1 Hyp (4)
<b>LOCATION CHASSIS SERIAL NO.</b>		
Left front door pillar		
(1) From top of float to bottom surface of float bowl cover without gasket.		
(2) Bypass, replaceable element, optional.		
(3) 3/4 pint additional with overdrive.		
(4) 4.56 with overdrive; 3.85, 4.1, 4.88, available on special order		

- (1) From top of float to bottom surface of float bowl cover without gasket.
- (2) Bypass, replaceable element, optional.
- (3) 3/4 pint additional with overdrive.
- (4) 4.56 with overdrive; 3.85, 4.1, 4.88, available on special order



# APPROXIMATE ANALYSIS OF VALVE, VALVE FACING AND SEAT INSERT MATERIALS IN GENERAL USE

## INTAKE VALVE STEELS

ELEMENT	1. SIL F		2. XCR		3. SIL X-142		4. 8-312		5. 21-4NS		6. SIL F		7. SAE		8. SAE		9. SAE	
	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
CHROMIUM (CR)	8.5	21.0	23.7	23.8	21.0	14.0	15.0	13.7	21.0	21.0	2.9	0.7	1.1	1.0	0.5	0.4	—	—
NICKEL (NI)	—	1.5	4.7	3.7	12.0	8.0	14.0	15.0	3.7	5.0	—	1.3	—	—	—	0.6	0.5	—
CARBON (C)	0.45	0.75	0.45	0.38	0.25	0.38	0.45	100	0.60	0.60	0.40	0.40	0.48	0.50	0.46	0.43	—	—
SILICON (SI)	3.2	2.0	1.0 MAX	0.8	0.8	2.8	0.6	3.5	0.7 MAX	0.25 MAX	4.0	0.3	0.3	0.3	0.3	0.3	—	—
MANGANESE (MN)	—	0.4	1.0 MAX	3.7	1.4	1.0	0.7	0.8	6.0	9.0	0.4	0.8	0.9	0.8	0.9	1.2	—	—
MOLYBDENUM (MO)	—	—	2.7	1.3	—	—	0.5 MAX	0.4	—	—	—	—	—	—	—	0.2	0.1	—
TUNGSTEN (W)	—	—	—	—	—	—	2.5	—	—	—	—	—	—	—	—	—	—	—
OTHER	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
IRON (FE)	BAL	BAL	BAL	BAL	BAL	BAL	BAL	BAL	BAL	BAL	BAL	BAL	BAL	BAL	BAL	BAL	BAL	BAL

## EXHAUST VALVE STEELS

ELEMENT	1. SIL F		2. XCR		3. SIL X-142		4. 8-312		5. 21-4NS		6. SIL F		7. SAE		8. SAE		9. SAE	
	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
CHROMIUM (CR)	8.5	21.0	23.7	23.8	21.0	14.0	15.0	13.7	21.0	21.0	2.9	0.7	1.1	1.0	0.5	0.4	—	—
NICKEL (NI)	—	1.5	4.7	3.7	12.0	8.0	14.0	15.0	3.7	5.0	—	1.3	—	—	—	0.6	0.5	—
CARBON (C)	0.45	0.75	0.45	0.38	0.25	0.38	0.45	100	0.60	0.60	0.40	0.40	0.48	0.50	0.46	0.43	—	—
SILICON (SI)	3.2	2.0	1.0 MAX	0.8	0.8	2.8	0.6	3.5	0.7 MAX	0.25 MAX	4.0	0.3	0.3	0.3	0.3	0.3	—	—
MANGANESE (MN)	—	0.4	1.0 MAX	3.7	1.4	1.0	0.7	0.8	6.0	9.0	0.4	0.8	0.9	0.8	0.9	1.2	—	—
MOLYBDENUM (MO)	—	—	2.7	1.3	—	—	0.5 MAX	0.4	—	—	—	—	—	—	—	0.2	0.1	—
TUNGSTEN (W)	—	—	—	—	—	—	2.5	—	—	—	—	—	—	—	—	—	—	—
OTHER	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
IRON (FE)	BAL	BAL	BAL	BAL	BAL	BAL	BAL	BAL	BAL	BAL	BAL	BAL	BAL	BAL	BAL	BAL	BAL	BAL

## FACING MATERIALS

ELEMENT	1. STELLITE		2. TONITE		3. NICHROME		4. X-702		5. (BRIGHT)	
	%	%	%	%	%	%	%	%	%	%
CHROMIUM (CR)	27.0	24.0	23.0	26.0	200	200	BAL	BAL	—	—
NICKEL (NI)	—	24.0	39.0	BAL	BAL	BAL	—	—	—	—
CARBON (C)	12.5	16.0	24.0	200	0.50	0.50	—	—	—	—
SILICON (SI)	2.7	1.3	1.0 MAX	0.4	0.3 MAX	0.3 MAX	—	—	—	—
MANGANESE (MN)	—	0.3	—	0.5 MAX	0.8	0.8	—	—	—	—
MOLYBDENUM (MO)	—	—	—	—	—	—	—	—	—	—
TUNGSTEN (W)	4.0	12.5	15.0	9.0	—	—	—	—	—	—
COPPER (CU)	63.0	37.0	10.0	1.0 MAX	—	—	—	—	—	—
OTHER	—	—	—	—	—	—	—	—	—	—
IRON (FE)	2.0	0.7	8.0 MAX	4.0 MAX	1.0 MAX	1.0 MAX	—	—	—	—

NOTES: 1. FERRITIC OR MARTENSITIC (MAGNETIC)

2. SIGMA PHASE (SLIGHTLY MAGNETIC)

3. AUSTENITIC (NON MAGNETIC)

4. NON FERROUS ALLOY (NON MAGNETIC)

5. CAST IRON (MAGNETIC)

• 212N HAS SAME COMPOSITION WITH 0.10 TO 0.20% NITROGEN

• FORMERLY NATIONAL EMERGENCY STEEL WITH PREFIX "NE" INSTEAD OF "SAE"

## SEAT INSERT MATERIALS

ELEMENT	1. STELLITE		2. TONITE		3. OFRONE-MOLY		4. SPARTA		5. BAE		6. SIL XB		7. VSM	
	%	%	%	%	%	%	%	%	%	%	%	%	%	%
CHROMIUM (CR)	27.0	24.0	23.0	26.0	3.0	3.0	5.2	3.5	21.0	3.0	—	—	—	—
NICKEL (NI)	—	24.0	39.0	BAL	—	—	—	—	15	—	—	—	—	—
CARBON (C)	12.5	16.0	24.0	200	18	18	100	0.55	0.75	0.65	—	—	—	—
SILICON (SI)	2.7	1.3	1.0 MAX	0.4	0.6	0.6	0.4	0.2	2.0	1.0	—	—	—	—
MANGANESE (MN)	—	0.3	—	0.5 MAX	0.8	0.8	0.9	0.3 MAX	0.4	0.6	—	—	—	—
MOLYBDENUM (MO)	—	—	—	—	3.5	3.5	1.3	—	—	5.0	—	—	—	—
TUNGSTEN (W)	4.0	12.5	15.0	9.0	—	—	—	14.0	—	—	—	—	—	—
COPPER (CU)	63.0	37.0	10.0	1.0 MAX	—	—	—	—	—	—	—	—	—	—
OTHER	—	—	—	—	—	—	—	—	—	—	—	—	—	—
IRON (FE)	2.0	0.7	8.0 MAX	4.0 MAX	BAL	BAL	BAL	BAL	BAL	BAL	BAL	BAL	BAL	BAL

ETHYL CORPORATION

## AUTOMATIC AND SEMI-AUTOMATIC TRANSMISSIONS

### Overdrive (Borg Warner Corporation)

Available on DeSoto, Dodge, Ford, Hudson, Henry J, Kaiser, Mercury, Nash, Packard, Plymouth, Studebaker and Willys. It consists of a planetary gearset and one-way clutch used behind a conventional three-speed transmission. The shift is controlled electrically according to car speed and is actuated by the accelerator. The driving ratio reduction is 30%.

### Hydra-Matic (Detroit Transmission Division GMC)

Available on Cadillac, Hudson, Kaiser, Lincoln, Nash, Oldsmobile and Pontiac. This transmission consists of a fluid coupling with three planetary gearsets providing four forward speeds and reverse. The shifts are automatic and vary with car speed and accelerator position. Ratios are as follows: first, 3.82:1; second, 2.63:1; third, 1.45:1; fourth, 1:1.

### Fluid Drive (Chrysler Corporation)

Used on Chrysler, DeSoto and Dodge. It consists of a semi-automatic four-speed constant-mesh transmission with a fluid coupling and a dry-disc clutch. Either of two forward ranges are selected manually when the foot clutch is disengaged. Shifting between the two ratios in each speed range is controlled by the accelerator pedal at the driver's option at speeds above governor speed. Ratios are as follows: first, 3.57:1; second, 2.04:1; third, 1.75:1; fourth, 1:1.

### Dynaflow (Buick)

The Dynaflow transmission consists of a four-element torque converter and a multiple pinion planetary gearset providing low and reverse ratios. The two turbine elements of the converter are interconnected through a planetary gearset of 1.6:1 ratio. The maximum torque multiplication of the converter is 2.45:1 and no additional gearing, other than the internal gearing between the turbines, is used for normal forward driving. The drive is always through the converter. Low range 1.82:1 gear ratio can be manually engaged at any throttle position for extra pulling power and engine braking.

### Ultramatic (Packard)

This transmission is composed of a four-element torque converter (one pump, two turbine members and a stator), a multiple pinion planetary transmission to provide low and reverse, and a direct drive clutch. The maximum torque multiplication of the converter is 2.4:1 and it is used only for accelerating. The direct drive clutch locks the pump and turbine together into a solid drive for part throttle operation. The shift to direct drive is controlled automatically by the car speed and accelerator position. Low range (1.82:1 gear ratio) can be manually engaged for extra power or engine braking.

### Powerglide (Chevrolet)

This transmission consists of a three-element torque converter with a multiple pinion planetary gearset providing low and reverse ratios.

The drive is always through the converter which has a maximum torque multiplication of 2.1:1. Normal drive starts through the torque converter and low gear ratio (1.82:1) and automatically shifts to converter only, depending on throttle opening and car speed. The transmission can be manually locked in low range for extra pulling power and engine braking.

#### Studebaker Automatic Transmission

This transmission has a three-element torque converter, a direct drive clutch and two planetary gearsets providing three forward speeds and reverse. Normal drive starts through the torque converter and intermediate gear ratio and shifts to solid direct drive depending on car speed and throttle opening. The torque converter has a maximum ratio of 2.15:1 and the gear ratios are as follows: first, 2.31:1; second, 1.43:1; third, 1:1. Low range can be manually engaged for extra pulling power or engine braking.

#### Fordomatic and Merc-O-Matic (Ford and Mercury)

This transmission is composed of a three-element torque converter and a multiple pinion planetary gear system to produce three forward speeds and reverse. The drive is always through the converter which has a maximum torque multiplication of 2.1:1. Normal drive starts through the torque converter and intermediate gear ratio (1.48:1) and automatically shifts to converter only, depending on throttle opening and car speed. Low range (2.44:1 gear ratio) can be manually engaged for extra pulling power or engine braking.

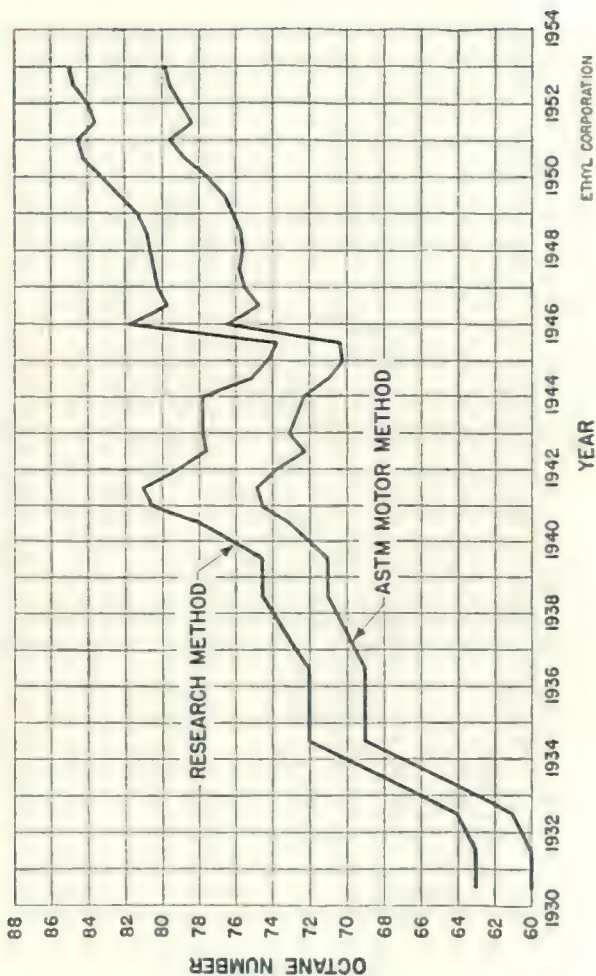
#### Fluid-Torque (Chrysler Corporation)

This transmission is used on the Chrysler 6 and V-8, the DeSoto V-8 and the Dodge V-8 passenger cars. It consists of a four-element torque converter with the M-6 semi-automatic four-speed constant-mesh transmission described under Fluid Drive. The torque converter has a maximum torque multiplication of 2.34:1 and the drive is always through the converter. Ratios used in this transmission with the torque converter are first, 3.28:1; second, 2.04:1; third, 1.61:1; and fourth, 1:1.

#### Hy-Drive (Chrysler Corporation)

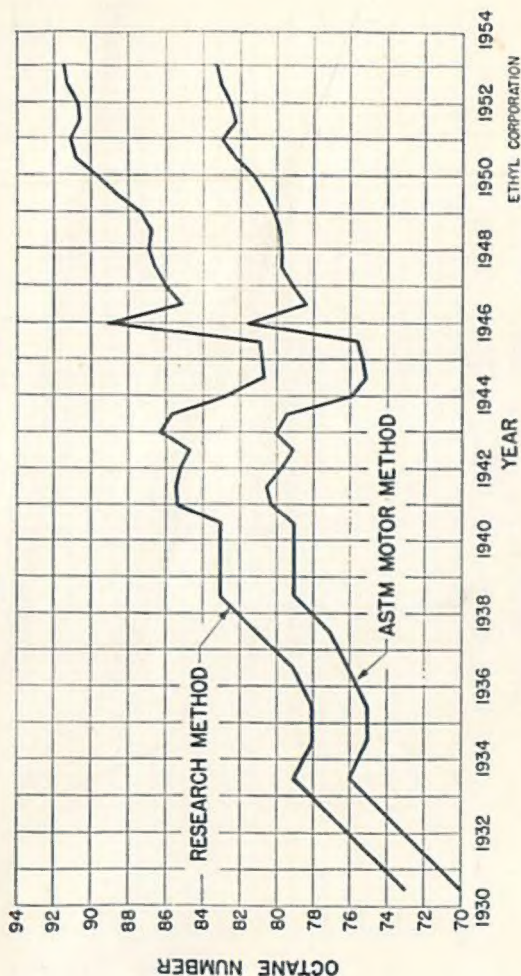
This transmission is used on the Plymouth. It consists of a four-element torque converter with a constant-mesh three-speed transmission. The torque converter has a maximum torque multiplication of 2.6:1 and the drive is always through the converter. Ratios used in this transmission with the torque converter are: first — 2.37:1, second — 1.68:1, third — 1:1.

# TREND IN ANTIKNOCK QUALITY OF REGULAR GASOLINES SOLD IN THE UNITED STATES



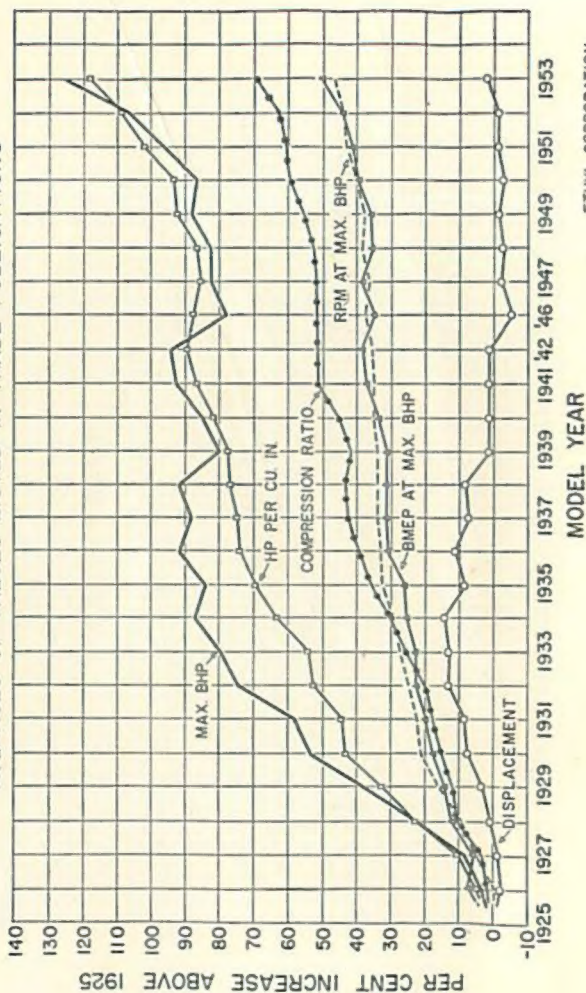


# TREND IN ANTIKNOCK QUALITY OF PREMIUM GASOLINES SOLD IN THE UNITED STATES



# TRENDS OF AMERICAN PASSENGER CAR ENGINE DESIGN SINCE 1925

AVERAGES OF VALUES LISTED IN TRADE PUBLICATIONS



ETHYL CORPORATION

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